DECEMBER 9, 1944

Railway Age

Founded in 1856

THE LIBRARY OF CONGRESS SERIAL RECORD

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BALDWIN
Westinghouse
diesel-electrics
on 60
Railroads

Hundreds of Baldwin-Westinghouse diesel-electric locomotives, on railroads from coast to coast, are hard at work helping to haul the greatest traffic in history.

Designed and built by pioneers in the railway motive power field, these rugged locomotives are demonstrating their economy and dependability under the most severe railway operating conditions. The Baldwin Locomotive Works, Locomotive & Ordnance Division, Philadelphia, Pa. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland, Detroit, St. Louis, San Francisco, Houston, Pittsburgh.

BLW
THE BALDWIN GROUP

BALDWIN

LOCOMOTIVES

BALDWIN PRODUCTS FOR THE RAILROADS: Steam, diesel-electric and electric locomotives. Diesel engines. Hydraulic presses. Special railroad shop equipment. Testing machines and instruments. Steel tires and rolled steel wheels. Crane wheels. Connecting rods and other steel forgings. Steel castings. Springs. Metal plate fabrication. Boilers. Non-ferrous castings. Bending rolls. Plate planers. Dynamometer cars.

BALDWIN SERVES THE NATION WHICH THE RAILROADS HELPED TO BUILD

The Season's Greetings

TO ALL RAILROAD MEN

With sincere appreciation of the magnificent war job performed by the Nation's foremost carrier — The American Railroads.

AMCCW

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE, NEW YORK, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO, ILL.

Organized To Achieve: Uniform Specifications — Uniform Inspection — Uniform Product

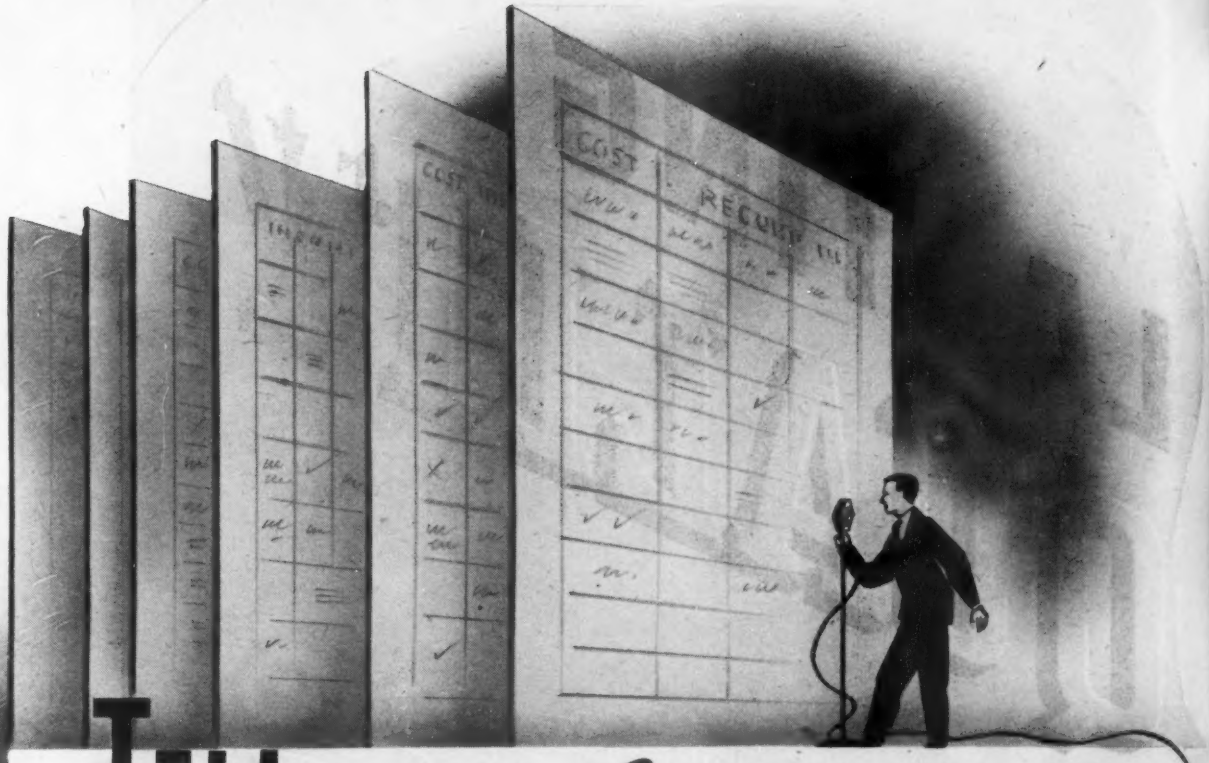
3866

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 117, No. 24.

LASTING QUALITY

MINER
FRICTION DRAFT GEAR
CLASS A-22-XB

W. H. MINER, INC.
CHICAGO • ILLINOIS



TELL *your Cost records* WHAT TO SAY....

Any good businessman pays strict attention to the facts his cost records tell him. But he doesn't let it go at that—he makes sure that his cost records *have the right kind of facts to deliver.*

When you use Clark Products you make sure that your own cost records will give a business-like report of painstaking engineering, of tough and enduring quality, of practical usefulness—stated in low cost performance and lasting satisfaction.

CLARK EQUIPMENT COMPANY • *Railway Division* • BATTLE CREEK, MICHIGAN

CLARK RAILWAY TRUCK . . . A PROMISE OF MORE COMFORTABLE TRANSPORTATION—SMOOTH, SWIFT, NOISELESS!

CLARK BLIND RIVETS . . . CUTTING ASSEMBLY TIME AND COSTS, REVOLUTIONIZING MANY PHASES OF PRODUCT DESIGN.

CLARK ELECTRIC STEEL CASTINGS . . . OF INTRICATE DESIGN AND VARIED SELECTIONS—OF UNIFORM FINE QUALITY.

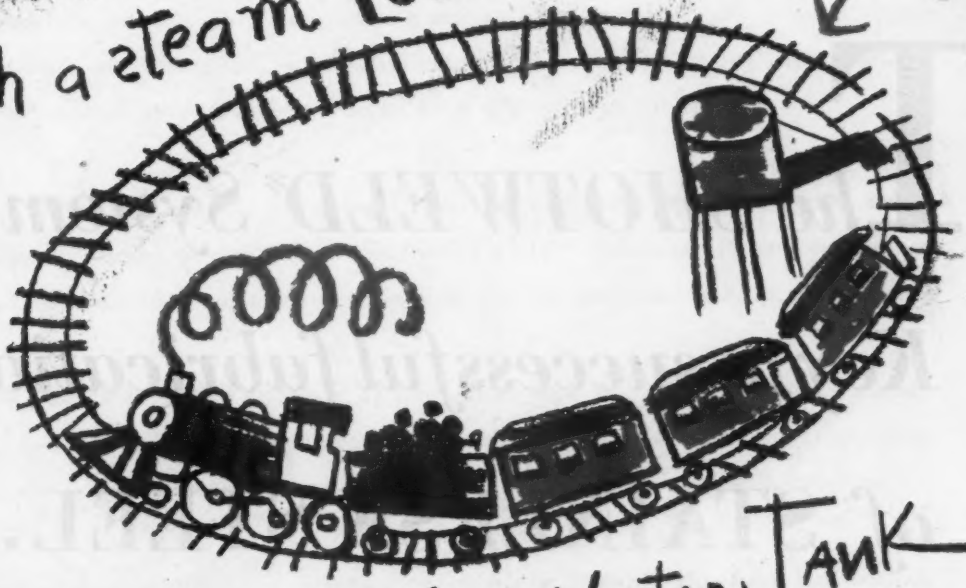
CLARK GEARS AND FORGINGS . . . TRUSTED STAND-BY'S OF RAILROAD BUYERS—FOR ECONOMY AND SATISFACTION.

CLARK CELFOR DRILLS AND REAMERS . . . VETERAN "RAILROADERS" WITH A RECORD OF TOUGH DEPENDABILITY.

CLARK INDUSTRIAL TRUCKS AND TRACTORS . . . FAST, VERSATILE "DISCOVERERS" OF HUGE SAVINGS.

OTHER PRODUCTS OF CLARK—Metal Spoke Wheels, Front and Rear Axles, Axle Housings, Transmissions, Trailer Axle, Booster Unit, Torque Converter.

Dear Santa
Please bring me a Train
with a steam Locomotive Like this



Don't forget the Water Tank.
Daddy says you can't run
an engine without good Water.
Jack

Dearborn
TRADE MARK REGISTERED
BOILER WATER
TREATMENT
AND SERVICE

The SHOTWELD System... Key to successful fabrication of* STAINLESS STEEL... *a BUDD invention*

When stainless steel was first cold-rolled in sheets in 1929, its vast superiority for structural purposes was immediately recognized by Budd engineers. Extraordinary physical properties gave it advantage over any other known metal. The only drawback was in difficulty of fabrication.

This difficulty was overcome by Budd in the SHOTWELD* system. Perfection of this system brought stainless steel into a wide new field of usefulness, including the structural parts of railway passenger cars. Having three to four times the elastic strength of carbon steel, its use permitted lighter weight construction without sacrifice of safety or endurance.

What is the SHOTWELD system?*

Briefly stated, it is a system of fabrication by electrical welding which combines *accurate control, automatic inspection* and *printed record* of every weld.

It controls current and time with accuracy. It eliminates risk from voltage variations or intangible factors by automatically compensating for voltage variation and recording the result on a visible paper tape.

The Weld Recorder is an integral part of the SHOTWELD* system, being built, with weld controls, into the SHOTWELD* machine. It establishes the final control and determined result which are not possible without this record.

The SHOTWELD* system of fabrication and the SHOTWELD* machines are patented by Budd. Both are being used by leading manufacturers. License for use is *available to any responsible manufacturer* on reasonable terms.

Successful fabrication of stainless steel made possible the first lightweight, streamlined train on American railroads. Beginning with the Budd-built Pioneer Zephyr for the Burlington, put in service in 1934 and still giving splendid performance, the succeeding years until 1942 saw a succession of distinguished trains, built for America's greatest and most progressive railroads. More than 60 million train miles have proved the soundness of Budd design and the enduring strength of stainless steel structures.

EDWARD G. BUDD MANUFACTURING COMPANY

PHILADELPHIA • DETROIT

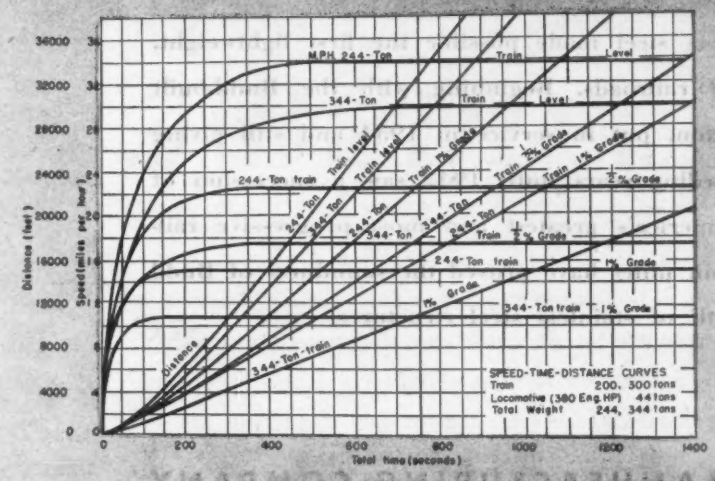
CHICAGO • NEW YORK • ST. LOUIS • SAN FRANCISCO • WASHINGTON

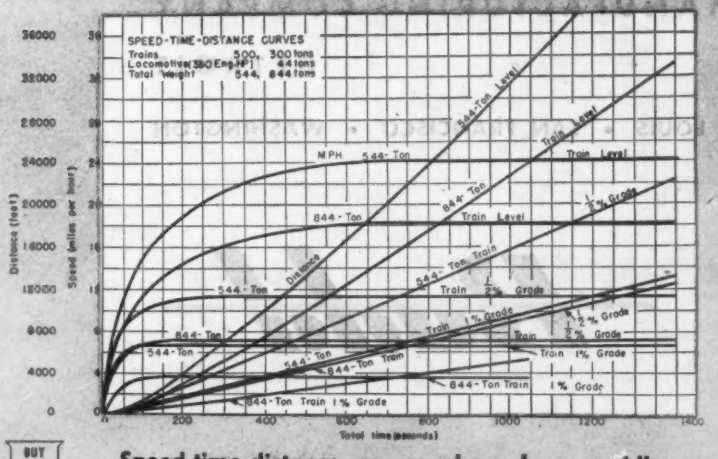
Budd

*Reg. U. S. Pat. Off.

"THESE 2 DIESEL-ELECTRICS

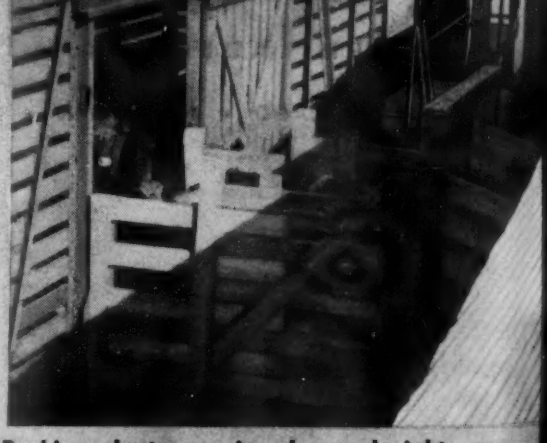
Five of these "Lightweight Champion" diesel-electrics are averaging 16 hours' daily work on the Frisco Lines; two are in Memphis, and the other three are at Hugo, Okla., Neodesha, Kan., and Cape Girardeau, Mo.





BUY WAR BONDS

Speed-time-distance curves show how rapidly the 44-tonner will accelerate various loads under different grade conditions.

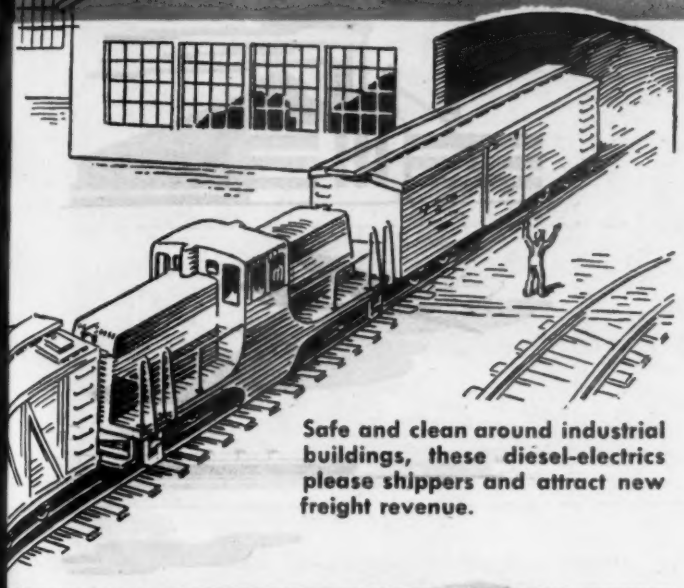


Packing plants, running day and night, depend on prompt delivery of live stock. The Frisco depends on its diesel-electrics for the handling of this valuable freight.

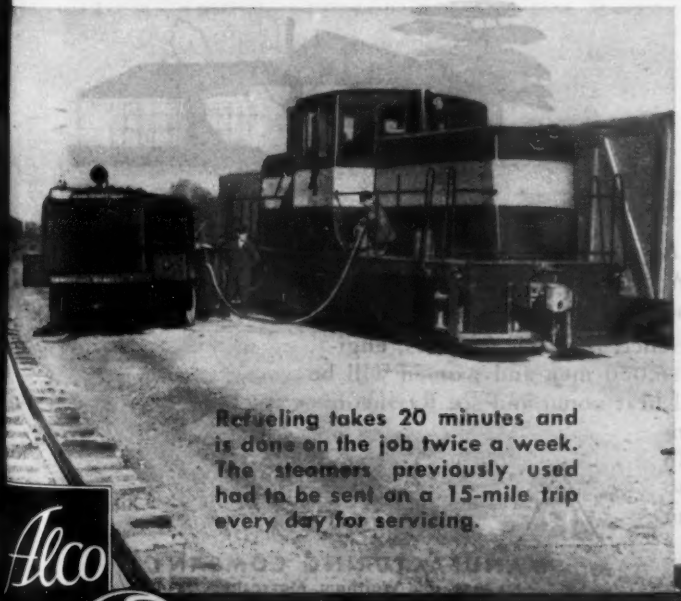
RELEASED 4 STEAMERS—

—licked a tough grade, and brought us new revenue"

H. L. Worman, *Vice President in charge of operations*
St. Louis-San Francisco Railway



Safe and clean around industrial buildings, these diesel-electrics please shippers and attract new freight revenue.



Refueling takes 20 minutes and is done on the job twice a week. The steamers previously used had to be sent on a 15-mile trip every day for servicing.

TO furnish war-booming Memphis industries with 40 hours' switching a day—at the exact time each plant called for it—the Frisco Lines had to keep four heavy steam locomotives at work. Now, it's done by two of these versatile 380-hp diesel-electrics—at 30 per-cent lower cost per locomotive-hour, and in places where previously the steamers were not admitted.

A manufacturer of plane parts who banned steamers from his entire plant property as a safety measure has turned over all the plant's freight handling to the Frisco because the diesel-electrics can safely go right inside the long shipping building to pick up the loaded cars.

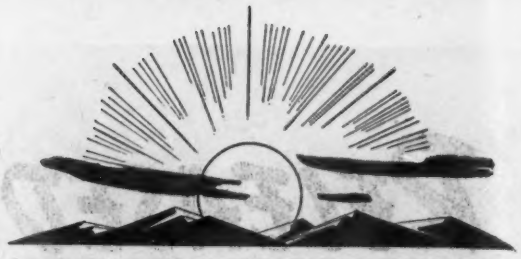
At another plant, the high initial tractive effort of these 380-hp units enables one of them to pick up 255-ton trains and accelerate them to 7.5 mph up a 1500-foot reverse curve that has a 1.5 per-cent grade. Their flexible wheelbase and two-axle equalized swivel trucks enable them to negotiate easily the sharp curves at industrial plants.

Because this 44-ton diesel-electric can also do transfer and light road work, you can utilize all of its 95 per-cent availability to cut operating costs and strengthen your peacetime competitive position. Our representatives would like to discuss its application with you. Since we build all three types of motive power—diesel-electric, electric, and steam—they can impartially recommend the one which is economically best suited to your operation.

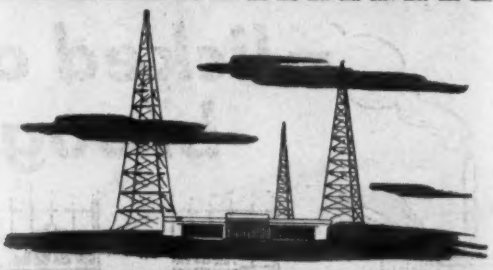
Alco GE

AMERICAN LOCOMOTIVE AND GENERAL ELECTRIC

A Great Electronic Day...

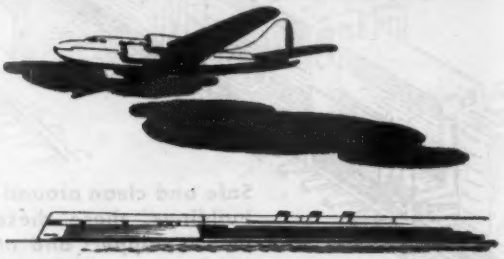


for Communications

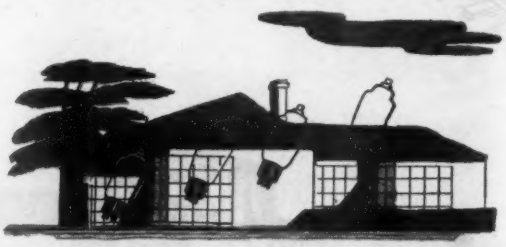


for Industry

for Transportation



for Home



Raytheon is proud of its contributions in the development of new electronic tubes and complete electronic equipment for the Armed Forces. Proud of the trust the military has placed in our designs, engineering and manufacturing abilities.

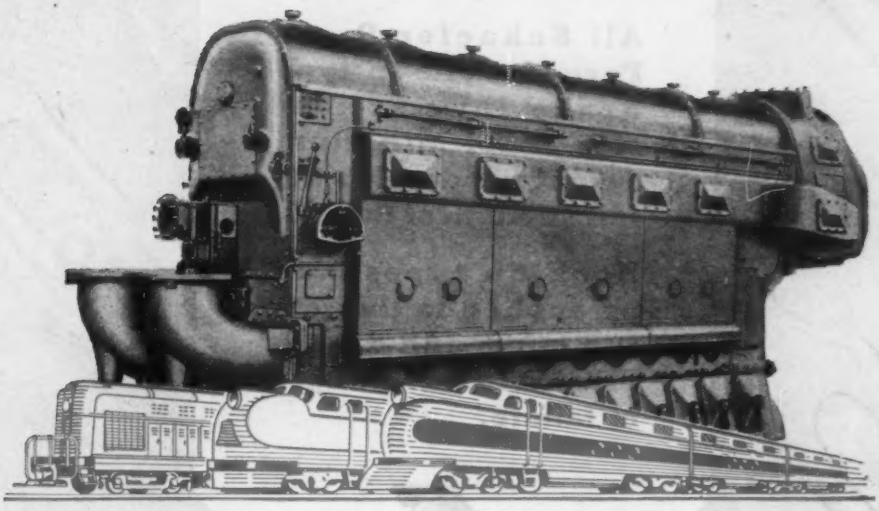
When war ends, Raytheon's wartime experience, research facilities, engineering and the production skills of over 16,000 men and women will be turned to peacetime electronics. Then you'll hear about and see Raytheon Electronic Equipment that will provide untold benefits in all phases of electronics. In the coming Age of Electronics . . . LOOK to Raytheon for complete electronic equipment and electronic tubes.

Tune in the Raytheon radio program: "MEET YOUR NAVY," every Saturday night on the entire Blue Network. Consult your local newspaper for time and station.

RAYTHEON
MANUFACTURING COMPANY
Newton and Waltham, Massachusetts

Devoted to research and manufacture of complete electronic equipment; receiving, transmitting and hearing aid tubes; transformers; and voltage stabilizers.

2000-Horsepower Diesels Mean Less Locomotive Servicing



It takes only *three* Fairbanks-Morse Opposed-Piston Diesels to power a 6000-horsepower locomotive! Three Diesels and generators are obviously maintained and serviced faster and more economically than four or more.

Fairbanks-Morse Opposed-Piston Diesels are easy to maintain, too, because they are simple . . . require few adjustments. They have no valves or valve-actuating mechanisms, no cylinder heads.

Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

BUY MORE WAR BONDS

A name worth remembering!

FAIRBANKS-MORSE

Lighter - Stronger - Better

JAWS

All Schaefer Drop-Forged weld-on type Brake Jaws are designed for minimum weight yet develop the full strength of the rod.

Hook-on types may be applied to the rod, removed and re-applied without danger of failure.

STANDARD ON MOST ROADS

Schaefer Light Weight Design Insures More Than Car Life

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.

DROP-FORGED FOR LIGHT WEIGHT, HIGH STRENGTH, LONG LIFE AND SAFETY

FLAME-HARDEN IRREGULAR CONTOURS

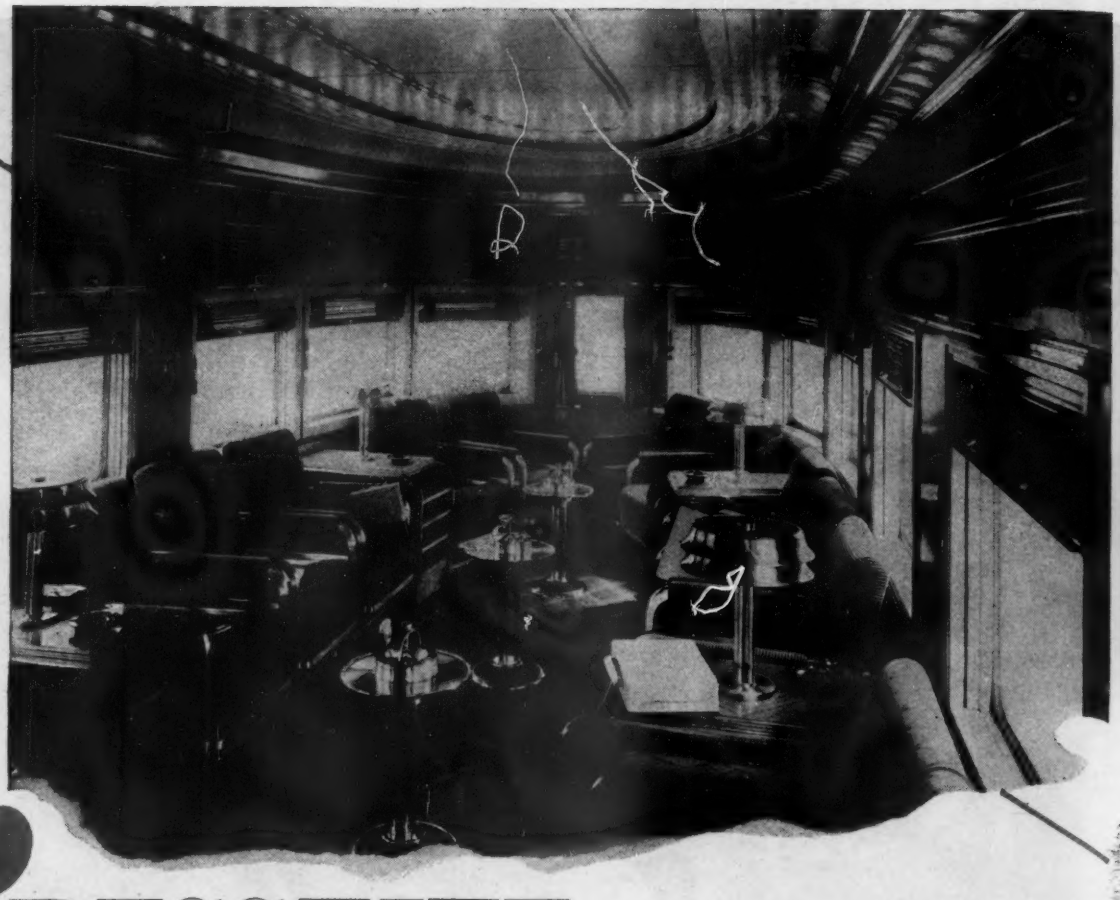
by Using Rigid Templets

• The curved wearing surfaces of this valve motion link are being flame-hardened to give increased life. This is a good example of how Oxweld's flame-hardening can give uniform surface hardness even along irregular contours... at the exact points where wear occurs. The head is connected to a motor-driven drive unit, which follows a rigid templet in the same manner as a shape-cutting machine. Apparatus to do this kind of work and many other flame-hardening jobs can be constructed easily with help from The Oxweld Railroad Service Company.

Many kinds of steel and iron parts can be flame-hardened by the methods which Oxweld has helped to develop. An Oxweld representative will be glad to help you apply these procedures in your shop.

THE OXWELD RAILROAD SERVICE COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
Carbide and Carbon Building Chicago and New York

SINCE 1912 THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS



PRESSTITE Sealers and Adhesives Assure Better, More Economical Car Construction and Maintenance

There are many highly specialized Presstite Sealing Compounds that meet various railway construction and maintenance demands. Presstite sealers and adhesives are easy to apply, stand up under extremes of heat and cold and have been thoroughly proven in test and service.

A few of the many Presstite products for railway use include:

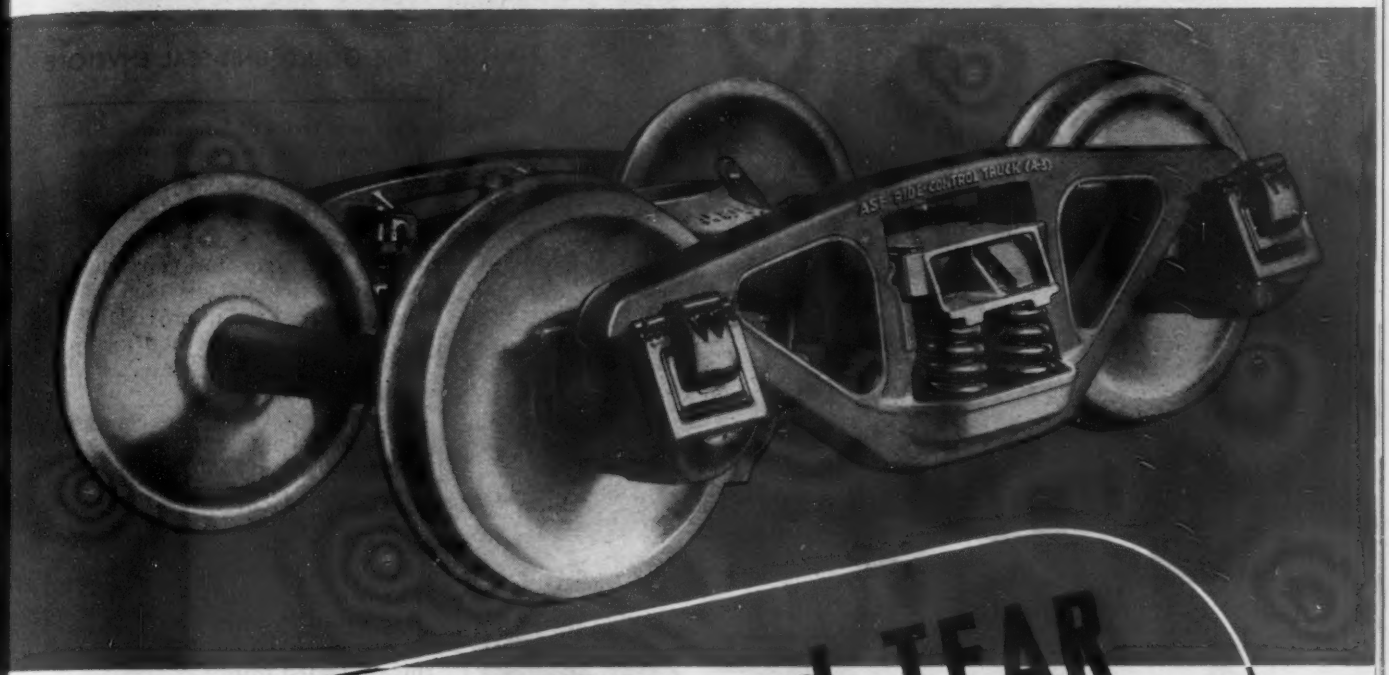
- **Presstico No. 500, Adhesive Felt Tape.**
  For anti-squeak uses and insulation between metals.
- **Presstico No. 504 and No. 505, Impregnated Adhesive Felt Packing.**
- **Presstico No. 23212 Extruded Glass Sealer Tape.**
  A better, long-lasting, flexible seal for car windows. In tape or ribbon form, in thicknesses and widths to meet your requirements.
- **Presstico Spot Weld Sealer.**
  Produced in flow-gun, brush, or spray types. Non-corrosive to metals and prevents rust. For tightly sealing any spot welded seam.
- **Presstico No. 2390 Asphalt Waterproofing Mastic.**
  For preventing rust and corrosion of railroad equipment.

If you have a problem involving adhesive or sealing compounds for railway application, or if you are looking for an improved method of doing your present sealing jobs, send your requirements to Presstite. Our engineers will gladly work with you in producing the correct formula for your particular needs.

PRESSTITE

PRESSTITE ENGINEERING COMPANY, 3954 Chouteau Ave., St. Louis 10, Missouri

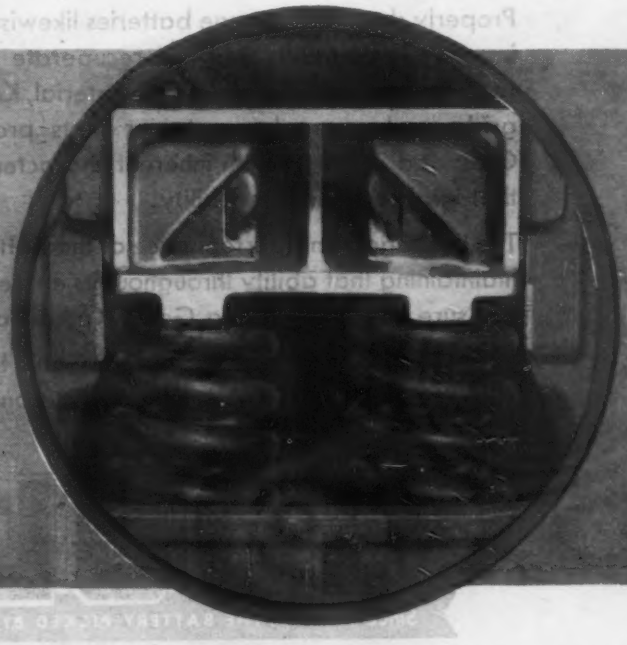
THE TRUCK FOR TODAY'S NEED . . . TOMORROW'S SPEED!



CUT WEAR and TEAR and ROADBED CARE!

NO SPRING PLATES
NO SPRING PLANKS

Because the A. S. F. Ride-Control Truck (A-3) prevents destructive harmonic oscillation, no heavy rhythmic pounding is transferred from rail to roadbed. Rail-end batter, too, is reduced. And, since lateral truck motion is also controlled, cars ride evenly—without the swaying that otherwise exerts damaging pressures first on one side of the roadbed, then on the other. In addition, the Ride-Control system of balanced friction pressures prevents the roadbed wear often attributed to trucks that tend to go out of square in rounding a curve. This truck not only cushions the lading that it carries but is easy on rail equipment and roadbed as well.



AMERICAN STEEL FOUNDRIES

CHICAGO

MINT-MARK OF FINE CAST STEEL

RECUPERATIVE POWER

GLASSKLAD *since 1925*

A strong heart is always ready to pump hard or idle gently, depending on the action required. When you rest, your heart rests. The length and vigor of life depend upon the recuperative power of the human system.

Properly designed storage batteries likewise must meet varying power demands and still recuperate rapidly. Special features like Black Oxide active material, Kathanode positive grids, and spun glass retainer mats provide Kathanode Glassklad Batteries with inherent characteristics giving them that vital recuperative ability.

The life, vigor, and performance of the battery depend upon maintaining that ability throughout its entire service life. You are sure of getting it in a Gould Kathanode Glassklad.

Write Dept. 512 for Catalog 800 on Gould Kathanode Glassklad Batteries for Car Lighting and Air-Conditioning Service.

GOULD

Since 1898 THE BATTERY PICKED BY ENGINEERS

THE GOULD UNIT-SEAL ENVELOPE

One of a series of informative articles for users of industrial batteries.

Gould introduced the Kathanode storage battery to American industry in 1925. Then, its spun glass mat protection was a revolutionary development in storage battery construction. Today, proved and improved, it is still the most effective method for retaining the useful active material within the positive plate.

First in this Kathanode Unit is the positive grid with each box-type pocket having a round central conducting member that is completely imbedded in the active material and this protected from the weakening effects of peroxidization.

Second is the spun glass mat. Made to Gould specifications, the mat positively retains the useful active material in place, yet is porous enough to allow an abundance of free electrolyte to reach the plate surface.

Third is the Gould Unit-Seal Envelope, for this Kathanode construction would not be complete without a practical method for holding the mat snugly against the positive active material. This Unit-Seal is a flat sheet of polyvinyl material with perforated sections making it 60% porous, but with solid vertical sections where the Envelope folds around the two plate edges. This eliminates the possibility of short circuits through treeing to adjacent negative plates. The Envelope, furthermore, serves as an additional separator insulation.

In assembling the Kathanode Unit, one of these Unit-Seals is laid out flat and the selvage edge coated with an acid resistant adhesive. Then in sequence a mat is placed over the central perforated area, next the positive plate, followed by another mat. Th sheet is then folded over the mat to meet in the center where the adhesive makes a tight bond.

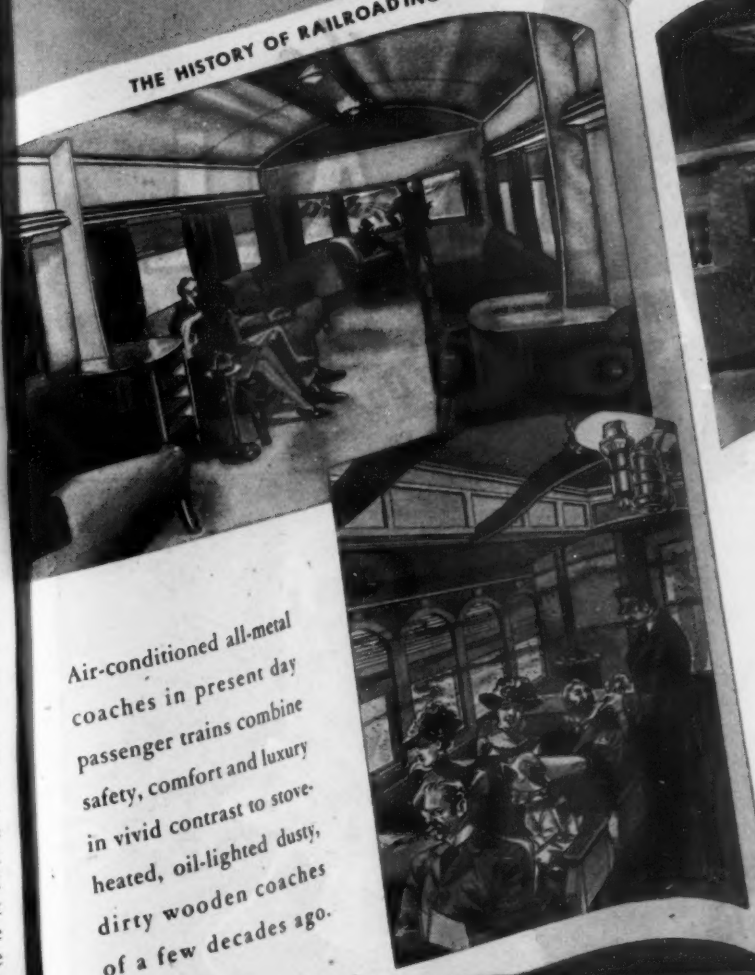
Thus is formed the Unit-Seal Envelope which encloses the positive plate with its two spun glass retainer mats—open at both the top and bottom, permitting minute spent particles to filter to the sediment chamber—all of which combine to make up the famous "Gould Kathanode Positive Unit."

For Excellence in storage battery production at Depew plant

GOULD STORAGE BATTERY CORPORATION, Depew, New York

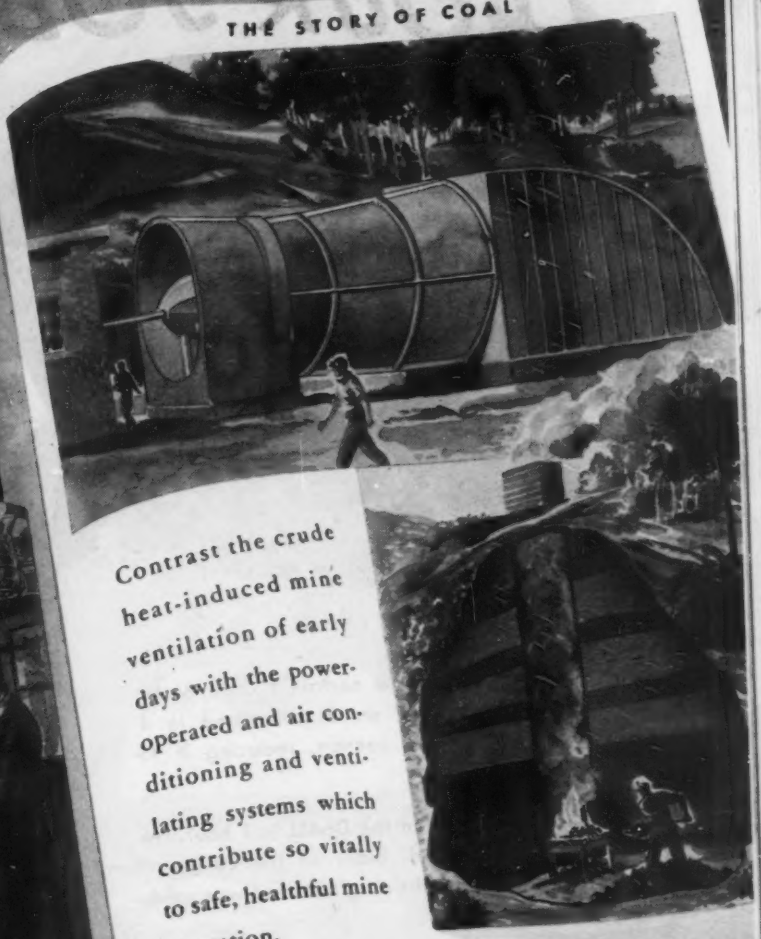
INTERDEPENDENT DEVELOPMENT
—a Continuing Story

THE HISTORY OF RAILROADING



Air-conditioned all-metal coaches in present day passenger trains combine safety, comfort and luxury in vivid contrast to stove-heated, oil-lighted dusty, dirty wooden coaches of a few decades ago.

THE STORY OF COAL



Contrast the crude heat-induced mine ventilation of early days with the power-operated and air conditioning and ventilating systems which contribute so vitally to safe, healthful mine operation.

RAILWAYS AND MINES ALIKE . . . PROMOTE HEALTH, COMFORT, SAFETY

HERE is just one aspect of the continuing evolution which has brought about such striking achievements as a part of the improvement of railroading and the advancement of coal mining. Progressive management, in both industries, works in the interest of public welfare. The parallel progress of the coal industry and the railroads serves to emphasize a mutual interdependence, both physical and financial.

THE HANNA CO.

The M. A. Hanna Company

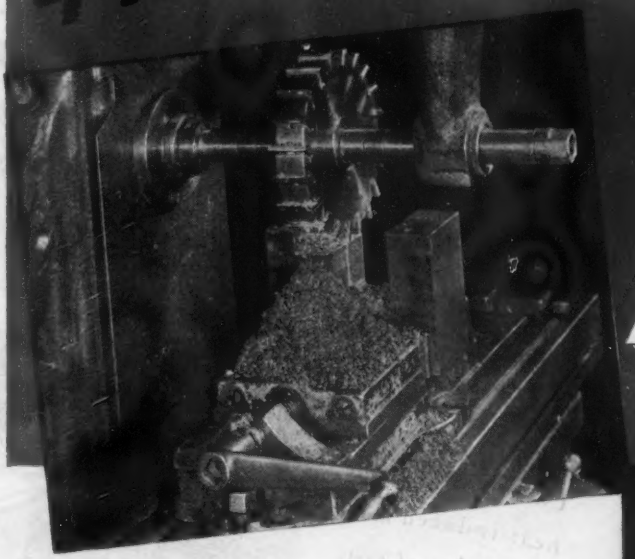
★ 1300 LEADER BUILDING • CLEVELAND 14, OHIO ★

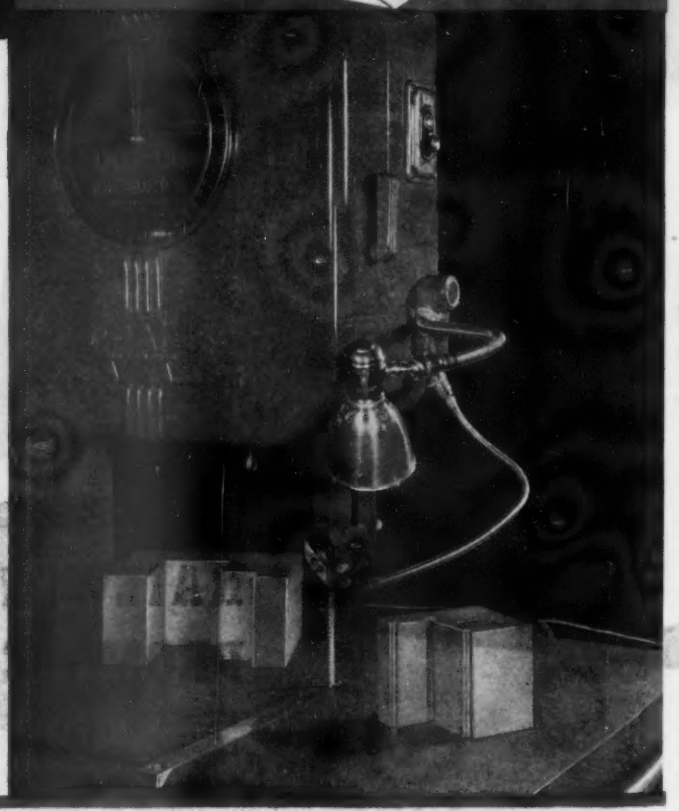
4 HOUR JOB IN 1 HOUR

on the

DoALL

MILLER versus DoALL





To remove a section from a certain Fixture Block, a #40 cutter was placed on a miller and in 4 hours it milled away the section, reducing it to worthless chips.

The same job was done on the DoALL in 1 hour. No set-up time was required. Sides of the cut were smooth and straight and the slug removed was solid, usable metal.

That's the kind of savings that has made DoALL today's most popular method for machining metals, alloys, plastics, laminates and wood.

Handiest machine in any plant—adaptable to internal and external shape cutting in machine shop, foundry, tool room, sheet metal room, experimental or finishing department.

The circular DoALL Advantages gives further details about DoALL's superiority. Write for copy.

DoALL

INDUSTRY'S NEW SET OF TOOLS

CONTINENTAL MACHINES, INC.

1345 S. Washington Ave. Minneapolis 4, Minn.

Sales & Service Offices: Baltimore, Birmingham, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Erie, Grand Rapids, Hartford, Houston, Indianapolis, Los Angeles, Milwaukee, Minneapolis, New York, Orlando, Philadelphia, Pittsburgh, Providence, Rochester, Rockford, St. Louis, San Francisco, Seattle, Toledo, Tulsa.

for MAIN LINE or BUSY YARDS

Style 17-C — An efficient main line-switch stand.

Eversure Lock — furnished when specified.

Style 20-B Automatic Safety Switch Stand, especially designed for multiple track locations.

there's a RACOR *Automatic* safety switch stand

Racor Automatic Safety Switch Stands all share the special Racor feature of being absolutely rigid for hand operation but always set for automatic action whether locked or not. If a train trails through, the switch is automatically thrown to the opposite position by the wheel flanges.

The 17-C Racor Automatic is recommended for main line tracks. The target has good visibility and the height is convenient for hand operation. Eversure lock can be furnished when specified, to eliminate padlocks.

The 20-B Automatic is recommended for multi-track locations, such as yards. The low target always indicates the true position of the switch. This switch stand promotes economy by eliminating expensive repairs often caused when rigid stands are trailed. A hook or padlock may be applied in the locking eye after hand throw is completed.

American Brake Shoe Company

3877

RAMAPO AJAX DIVISION • 230 PARK AVE., NEW YORK 17, N. Y.
HILLBURN, N. Y. • NIAGARA FALLS, N. Y. • CHICAGO, ILL.
EAST ST. LOUIS, ILL. • PUEBLO, COLO. • SUPERIOR, WIS.
LOS ANGELES, CAL. • SEATTLE, WASH. • NIAGARA FALLS, ONTARIO

Indisputable TESTS

HERE'S WHAT WE SAID IN 1935...

This advertisement appeared in Engineering News Record — Nov. 14, 1935

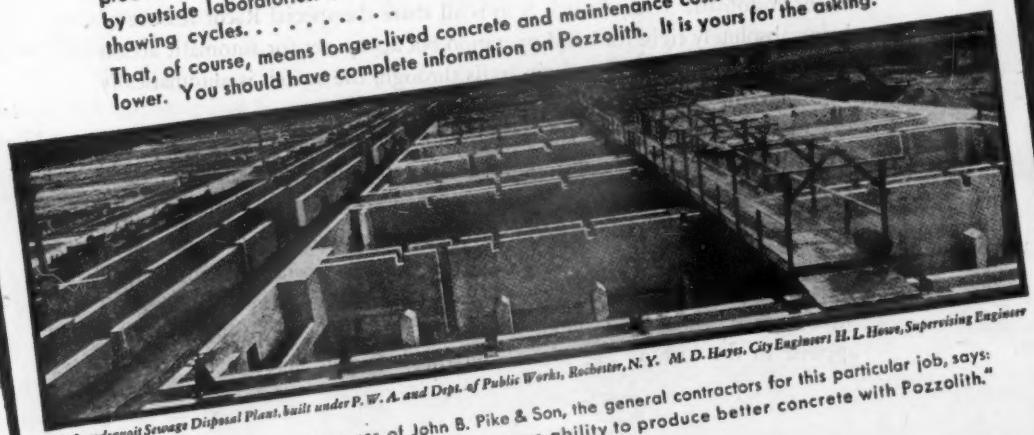
CONCRETE DISINTEGRATION IS COSTLY

Here is what only 20 years of exposure have done to a power plant dam in the East. Untimely disintegration like this can NOW be avoided.

POZZOLITH ADDS IMMEASURABLY TO THE LIFE OF CONCRETE STRUCTURES

YOU don't need 20 years to determine what Pozzolith will do to save concrete from premature deterioration. Master Builders — who developed this amazing product — have had its effectiveness checked by the stiffest kind of speeded-up tests by outside laboratories. Test pourings have been given as many as 250 freezing and thawing cycles. . . . . .

That, of course, means longer-lived concrete and maintenance costs that are definitely lower. You should have complete information on Pozzolith. It is yours for the asking.



The Irondequoit Sewage Disposal Plant, built under P. W. A. and Dept. of Public Works, Rochester, N. Y. M. D. Hayes, City Engineer; H. L. Howe, Supervising Engineer

Chas. W. Blazer, General Manager of John B. Pike & Son, the general contractors for this particular job, says: "There is no question in our minds regarding our ability to produce better concrete with Pozzolith."

MASTERBUILT PRODUCTS

MASTER

CONFIRM PERFORMANCE RECORD OF POZZOLITH CONCRETE DURABILITY • • • STRENGTH

TODAY'S FINDINGS BY HIGHEST TESTING AUTHORITIES
in an extensive program of tests employing a range of typical U. S. A. cements.

1. Pozzolith increased DURABILITY—

In SEA WATER—after 142 Cycles of Freezing and Thawing

Plain Concrete—of 39 beams tested.....15 survived
Pozzolith " —" 77 " " .....76 survived

In FRESH WATER—Freezing and Thawing

Plain Concrete—after average 50 cycles..durability factor = 20
Pozzolith " — " " 176 " .. " " = 80

2. Pozzolith increased STRENGTH—	6 Sack Mixes	4½ Sack Mixes
3-day Compressive	50%	70%
28-day "	12%	25%
3. Pozzolith cut WATER-CEMENT Ratio	14%	15%
4. Pozzolith cut BLEEDING	55%	60%

With the exception of durability, **the many important advantages of Pozzolith** (Cement Dispersion) **can be measured during the construction of a job.** Because of this fact the following benefits have been irrefutably proved during the 11 years' use of Pozzolith in millions of yards of concrete:

1. Adds greater workability
2. Cuts bleeding and segregation
3. Gives speed in placing, stripping, finishing
4. Cuts water-cement ratio
5. Produces greater strength
6. Lowers initial costs.

Now the amazingly high durability of Pozzolith Concrete has been indisputably proved **by the findings of the Nation's highest testing authority.**

Here's some post war preparing that you will want to do **now.** Write and we shall be glad to submit data which you can use to improve concrete and lower costs.

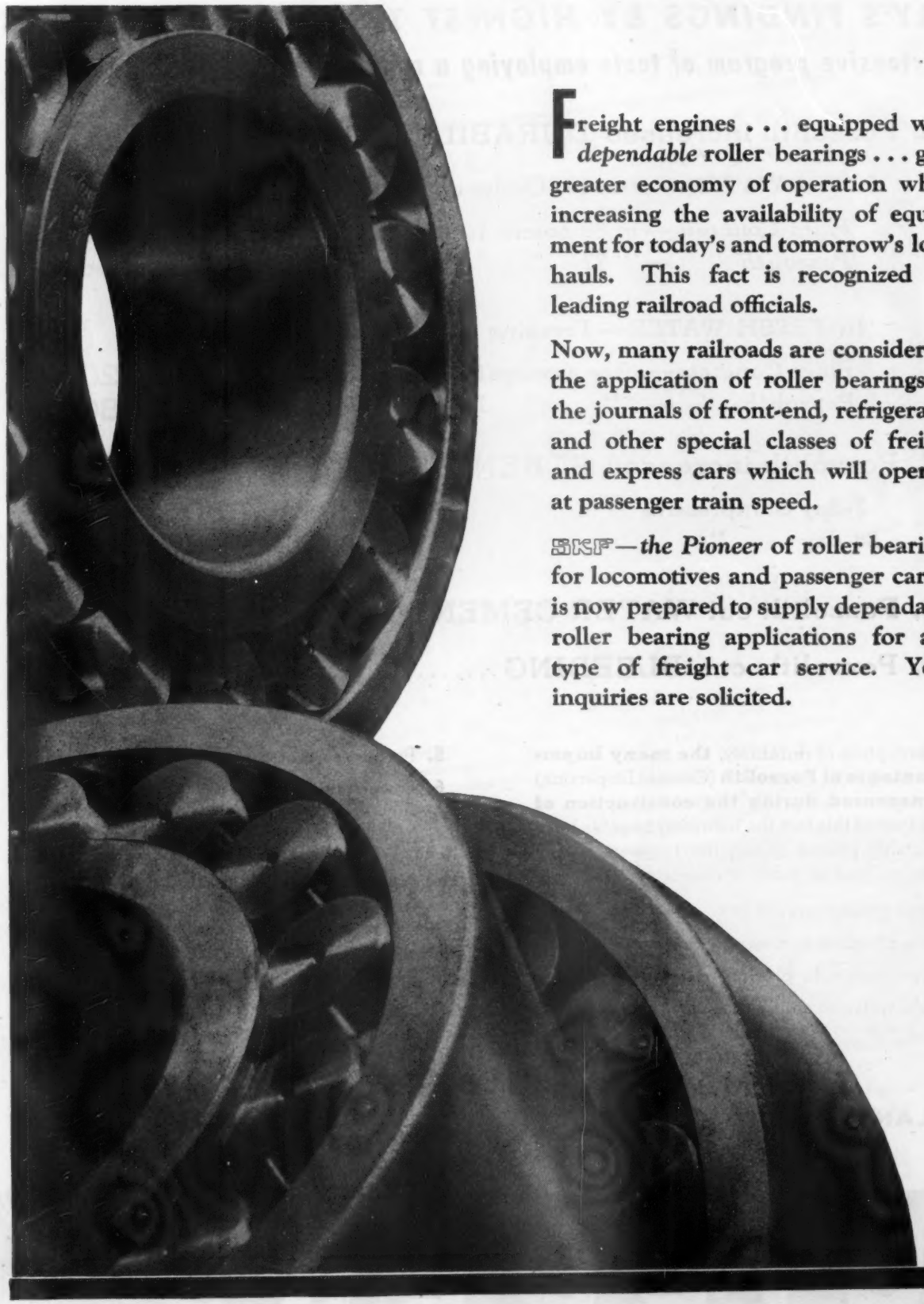
THE MASTER BUILDERS COMPANY

CLEVELAND 3, OHIO — TORONTO, ONTARIO

BUILDERS

MASTERBUILT PRODUCTS

A Shortcut to

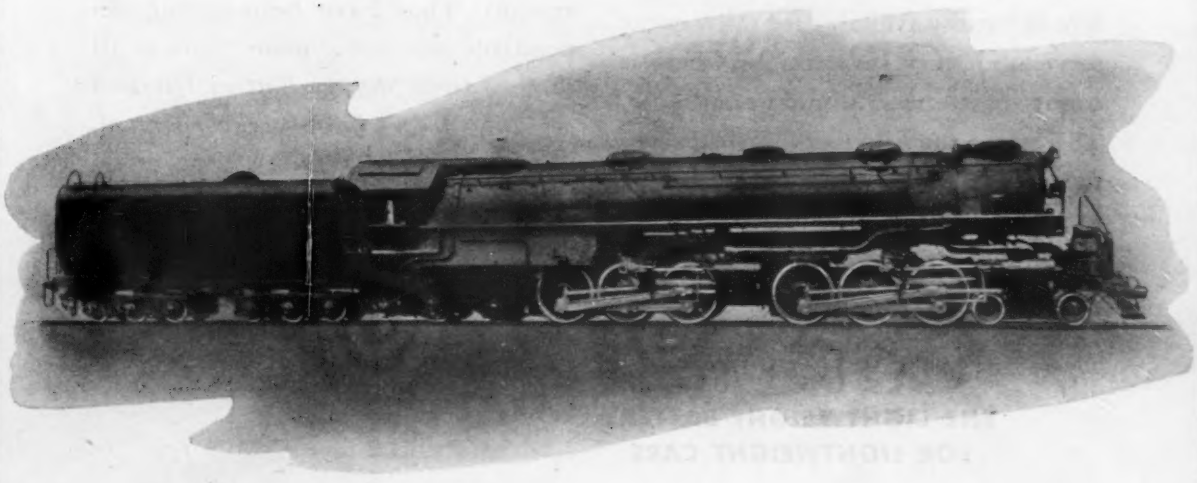


Freight engines . . . equipped with *dependable* roller bearings . . . give greater economy of operation while increasing the availability of equipment for today's and tomorrow's long hauls. This fact is recognized by leading railroad officials.

Now, many railroads are considering the application of roller bearings to the journals of front-end, refrigerator and other special classes of freight and express cars which will operate at passenger train speed.

SKF—*the Pioneer* of roller bearings for locomotives and passenger cars—is now prepared to supply dependable roller bearing applications for any type of freight car service. Your inquiries are solicited.

INCREASED FREIGHT REVENUE



202 UNION PACIFIC LOCOMOTIVES ARE SKF-EQUIPPED!

Since 1936 the Union Pacific has ordered dependable SKF Spherical Roller Bearings at various journal locations on freight and passenger steam locomotives and Diesel-electric passenger locomotives. Each time new engines have been built SKF has repeatedly been specified. A total of 202 locomotives, including 35 now being built by American Locomotive Company, are SKF-equipped per specification.

Dependability, minimum maintenance and maximum availability of power—so necessary these days—are assured with SKF Bearings. That is why leading American railroads look to SKF for the bearings that will meet their requirements. 5678

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA. 34, PA.

SKF

BALL AND ROLLER BEARINGS

Most Capacity Per Pound—for Post-War Cars

When it comes to providing adequate capacity in the electrical systems on post-war cars with the least weight, an obvious solution is to select light-weight electrical equipment—including Edison Alkaline Batteries.

Not only are they the lightest weight type of battery available for railway-car service but they save weight where it counts most—near the middle of the car. The larger the kilowatt-hour capacity, the greater is the weight that can be saved by using alkaline batteries.

An outstanding reason for their light weight is their steel cell construction—a construction that gives alkaline batteries the further advantage of unequalled mechanical strength.

Alkaline batteries are equally suitable for use in 32-volt, 64-volt or 110-volt systems. They have been giving dependable service for many years in all three. *Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, New Jersey.*

Edison

THE LIGHTWEIGHT BATTERY
FOR LIGHTWEIGHT CARS

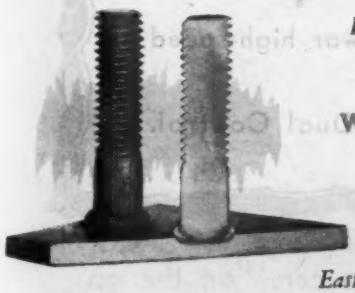
The electrical system of this modern streamlined car provides power for air-conditioning equipment, ample lighting, and a variety of electrical equipment in the kitchen, all of which, taken together, play an important part in passenger comfort, and emphasize the desirability of lightweight, dependable storage batteries. Post-war cars, too, are expected to make extensive use of electric power.

Complete fusion of stud to metal in less than 1/2 second...

The Nelson Stud Welder is simple to operate because the welding is *automatically* controlled. It eliminates the need for drilling, tapping, and hand welding bolts to secure parts, because it end-welds studs directly to the metal surface.

It is used by more than 460 industrial plants and shipyards. Operators are securing 500 to 1500 studs a shift. No previous welding experience is necessary to operate it.

Complete fusion of the stud to metal is obtained by accurate arc timing control, automatic action of the "gun," the use of flux-filled studs, and complete shielding of the arc.



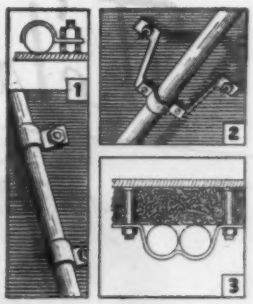
Cutaway view of stud, after etching with Nital.

For complete data, catalog and price list, write:

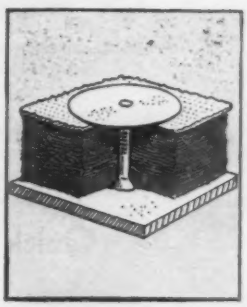
NELSON SPECIALTY
WELDING EQUIPMENT CORPORATION
Dept. RA, 440 Peralta Avenue
San Leandro, California

Eastern Representative: Camden Stud Welding Corp. Dept. 22, 1416 South Sixth St., Camden, N. J.

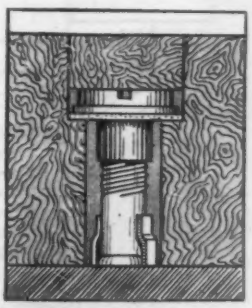
TYPICAL STUD APPLICATIONS



Wiring, conduit, and pipe are quickly secured. Here illustrated are a few methods: 1. Securing conduit. 2. Securing pipe (single and multiple runs). 3. Securing wiring of all kinds over soft insulation material.



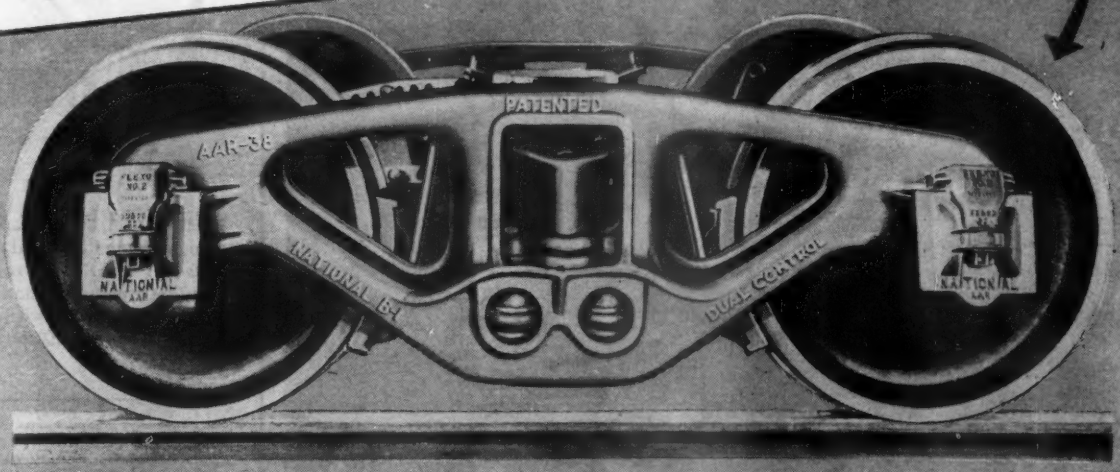
Nelson Insulation Pins are used to secure soft insulation rapidly and economically. They are welded directly through the material without injury to it. Where large metal surfaces must be insulated these pins will save both time and material.



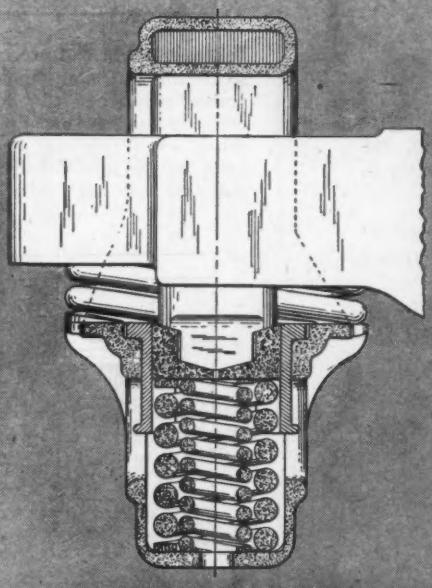
Wood flooring is secured over metal beams with studs. The flooring is laid, and holes drilled where desired. Studs are welded through the holes and nuts and washers tightened down. A wooden plug is then tapped in to complete the job.

NELSON STUD WELDERS & STUDS

The Truck For Smooth, Safe Riding



No Spring Plank
No spring plates
Quick Wheel Change



Section thru Control Unit

A smooth riding car means less damage to lading and longer life for equipment.

The National B-1 Truck has four control units (two in each side frame) which control "spring bounce" and forces which tend to throw trucks out of square.

Cars equipped with National B-1 Trucks with Dual Control can be speeded up with Safety.

Smoother riding and Fewer Parts assure lower maintenance costs.

* * *

The truck for Post-war high-speed freight service.

National B-1 with Dual Control.

Specify National B-1 Trucks with Dual Control to keep cars "on the go"

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

UNION PACIFIC YARDS AT CHEYENNE

A loading outfit in a compact "package" that can get around fast, operate in narrow quarters, *keep tracks clear for regular traffic,* and turn in a daily work slip that really means something. . . . That's the proper description for this husky "Caterpillar" Diesel D2 Tractor equipped with Trackson Traxcavator.

Scoop—lift—haul—dump . . . is the routine of this rig of many uses. Its "elevator bucket" can be dumped at any point; and its own self-laid, endless tracks enable it to climb over low obstacles and to shift large loads at good speed.

Besides loading and yard clean-up work, it can excavate . . . slope and widen embankments . . . clean out ditches and cuts . . . straighten stream beds . . . fill around abutments and culverts . . . handle ballast . . . mix and spread . . . pile trash . . . remove snow. For heavy pushing, a bulldozer can be attached in minutes.

And—whatever the work, you can be sure it is being done with typical "Caterpillar" Diesel economy—low fuel cost, easy operation, low maintenance.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR DIESEL

REG. U.S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

"OPEN GRIP" FOR SAFEST FOOTING AT LOWEST COST—

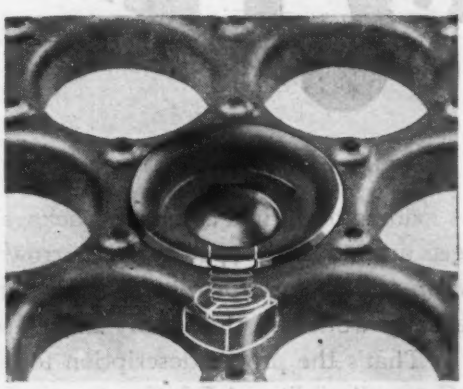
The ONE-PIECE Running Board

No Welds—No Rivets—No Lock Joints

Maximum anti-slip protection at minimum original cost and maintenance expense—that's Morton "Open Grip" Safety Tread.

This self-clearing tread is made slip-proof by the famous Morton Kass perforated button. The open circular areas are formed in a manner that leaves no flat surfaces to permit accumulation of snow or ice. This rounded construction promotes speedy, complete drainage and makes for strength without excessive weight. Each section is formed from a single piece of sheet steel requiring no welds, rivets, or lock joints.

Get complete facts about this most economical, *safe* tread today. It meets all requirements as specified in letter circular No. D. V.—1054 of the Association of American Railroads. Reasonably prompt deliveries are now possible.



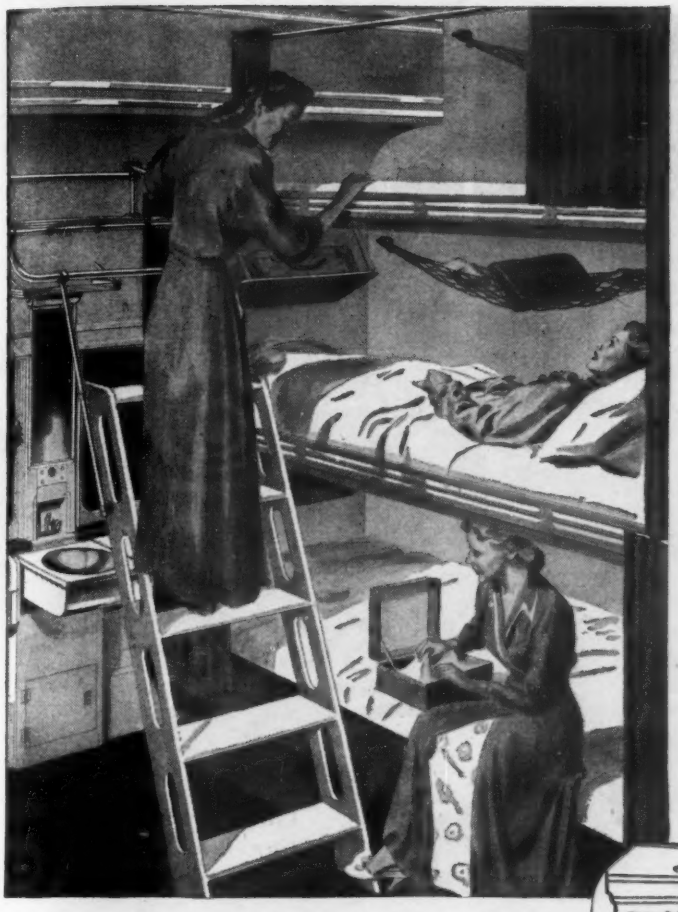
Easy, quick installation is achieved through this special device which fits any of the open areas of the tread. Rotating, elongated bolt slot compensates for ordinary variations in saddle punching.

District Sales Offices

New York, N. Y.—30 Church St., Courtland 7-7542
Chicago, Ill.—332 S. Michigan Ave., Wabash 6789
St. Louis, Mo.—Paul Brown Bldg., Central 3348
St. Paul, Minn.—E906 First National Bank Bldg., Cedar 1940
Washington, D. C.—6945 Wisconsin Ave., Bethesda, Md., Wisconsin 7378

MORTON MANUFACTURING CO.

5105 WEST LAKE STREET • CHICAGO 44, ILLINOIS



Occupants enjoy completely modern berths, easy of access, standard length . . . individual curtains, lights and air conditioning; luggage shelf and hammock; hangers to keep wearing apparel tidy. Each compartment has folding wash basin, dental faucet, and electric razor outlet. Additional washrooms and toilet facilities at each end of car.

●

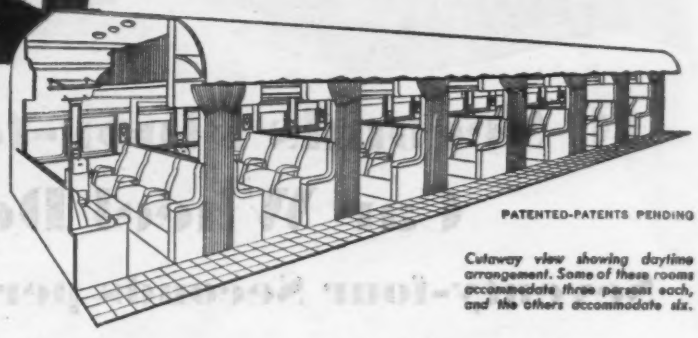
In the THREE-TIER Sleeper, "family-style" compartments, for three or six passengers, provide spaciousness with good light and healthful air conditioning when prepared for daytime occupancy . . . adjustable seats, with sponge rubber cushions and individual arm- and footrests; wide windows; and ample space for storing luggage.

Three-Tier...

THE "BUDGET" SLEEPER

New, Low-Priced Pullman Berths

This Pullman sleeper places the aisle at one side, to allow a totally new berth arrangement —*in three tiers*—for increased capacity. This results in a low-cost accommodation, *without lessening the comfort or the length of a single berth.* For daytime use, easy-riding seats are reserved and separated by upholstered armrests. By night, all berths are easily accessible, absolutely private, and individually air-conditioned. The THREE-TIER Sleeper is designed especially to provide restful sleep, overnight comfort and daytime riding pleasure, for the traveler with a modest budget.



PATENTED-PATENTS PENDING

Cutaway view showing daytime arrangement. Some of these rooms accommodate three persons each, and the others accommodate six.

Again Pullman leadership in the sleeping car field has asserted itself, in developing cars which will set the fashion with the traveling public, for economy and good value as well as for luxury. For many months, Pullman-Standard has been showing—car by car—the elements of the trains of tomorrow. The advanced-type cars which we have introduced are not just tentative designs; they are ready for production—to give the railroads a flying start in their programs of modernization; to quicken the tempo of public traveling; and to give employment to our returning veterans.

The best Christmas gift of all—*War Bonds*

Pullman-Standard

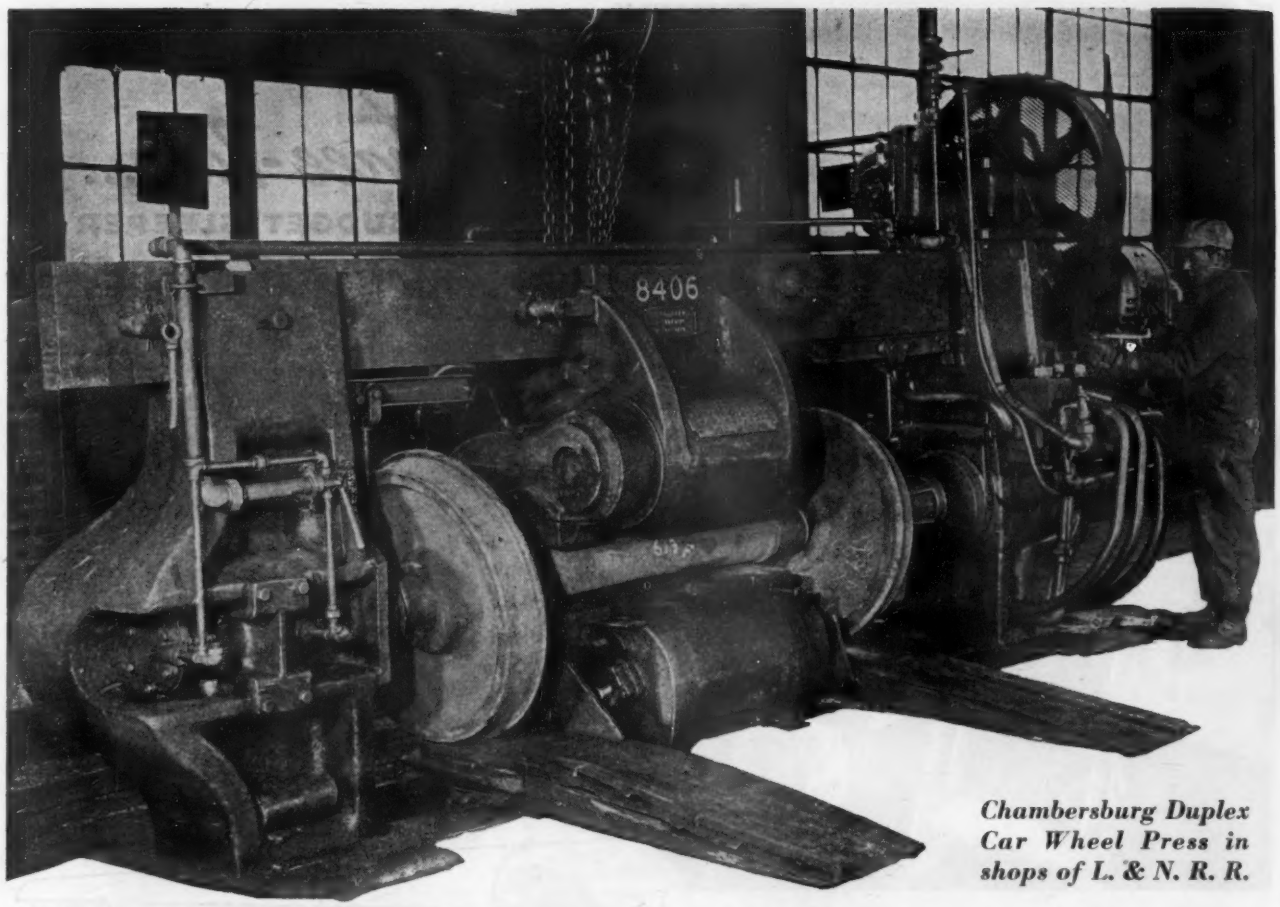
CAR MANUFACTURING COMPANY

CHICAGO • ILLINOIS

World's largest builders of modern streamlined railroad cars

Offices in seven cities . . . Manufacturing plants in six cities

© 1944—P. S. C. M. Co.



Chambersburg Duplex Car Wheel Press in shops of L. & N. R. R.

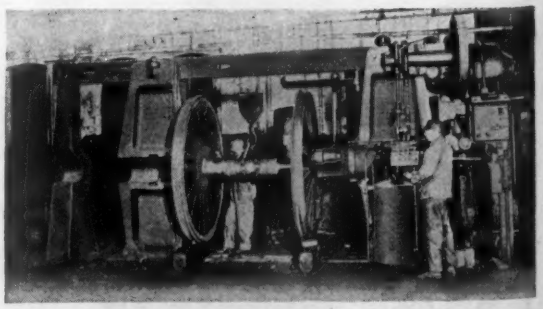
40 Seconds Floor-to-Floor Car Wheel Demounting Time

Seventy-four Seconds per Wheel for Mounting

Chambersburg Wheel Presses have established records in railroad shops all over the country for the speed with which they permit the rapid mounting or demounting of wheels. On the car wheel presses, records have been made for demounting wheels as low as 40 seconds per wheel floor-to-floor —mounting time as rapid as 72 seconds.

These presses have been designed and improved with the needs of the railroad shop constantly in mind—the necessity for speed in getting car wheels back in service has been paramount.

Write for details of today's Wheel Presses. Bulletin 202 describes the Duplex Car Wheel Press. Bulletin 212-1 describes the Driving Wheel Press.



Chambersburg Vertical Driving Wheel Press

CHAMBERSBURG ENGINEERING CO., CHAMBERSBURG, PA.

ARMY E NAVY

CHAMBERSBURG

HAMMERS · CECOSTAMPS · PRESSES

FROM 9.82 UP...

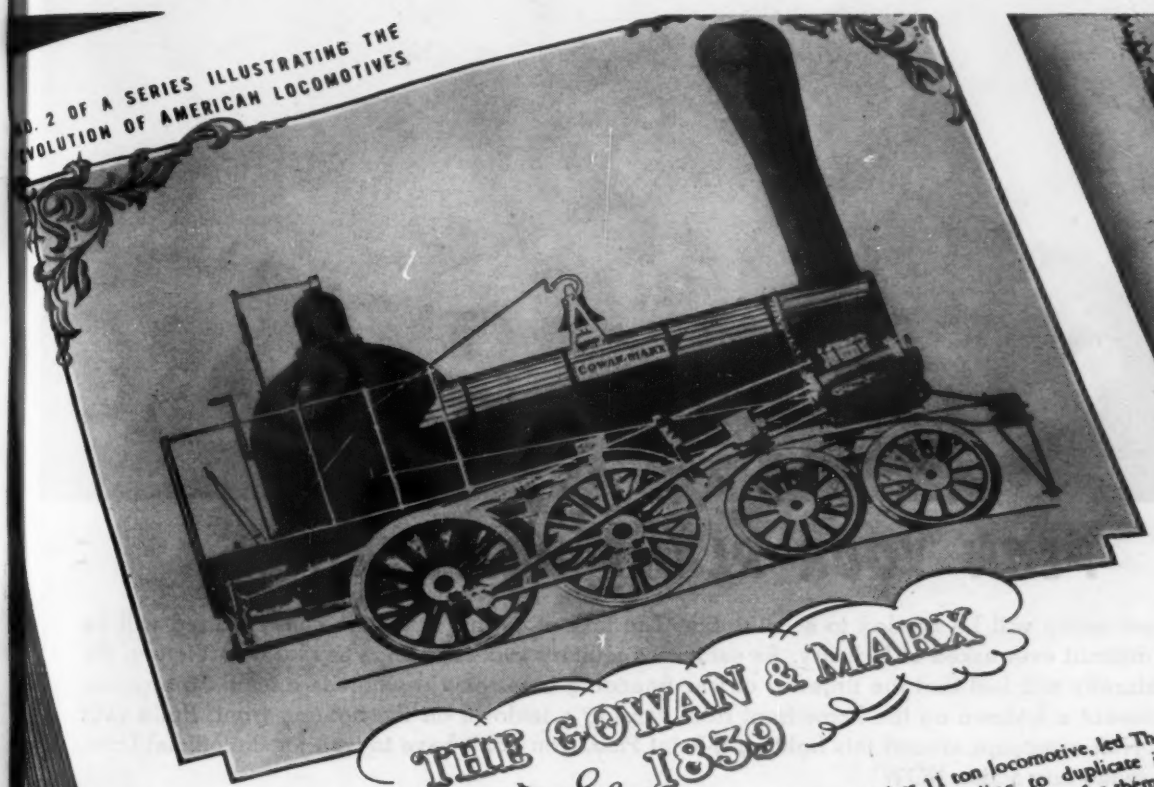
That's not a price tag, but the miles per hour America's foremost freight locomotive traveled in 1839. Today our rail cargoes almost equal the speed of crack passenger trains ... And no small part of this progress is due to the precision-balance of the ...

Union WEB Spoke Driving Wheel Center

- ★ Cruciform section spokes for great additional strength.
- ★ Reinforced rim support to eliminate flat spots, out of roundness, etc.
- ★ Correct distribution of metal for better balancing of smaller diameter wheels.
- ★ Wheels easily inspected before and after installation.
- ★ Troubles due to shrinkage eliminated by simplicity of design.
- ★ Can be made to any material specification.

BUY MORE U. S. WAR BONDS AND STAMPS

NO. 2 OF A SERIES ILLUSTRATING THE EVOLUTION OF AMERICAN LOCOMOTIVES



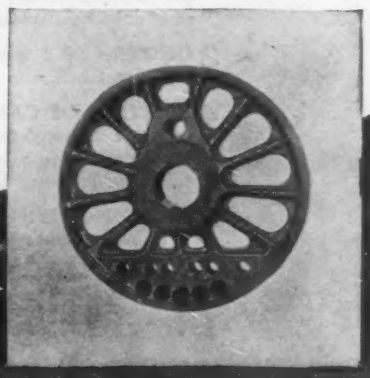
THE GOWAN & MARX 1839

This Eastwick & Harrison product made for the Philadelphia and Reading Railway, hauled a load of 101 four-wheeled freight cars (40 times the weight of the locomotive) at an average speed of 9.82 miles an hour between Reading and Philadelphia.

The performance of this engine, excelling that of any other 11 ton locomotive, led The Philadelphia and Reading to duplicate its design in ten engines later built for them at Lowell, Mass.

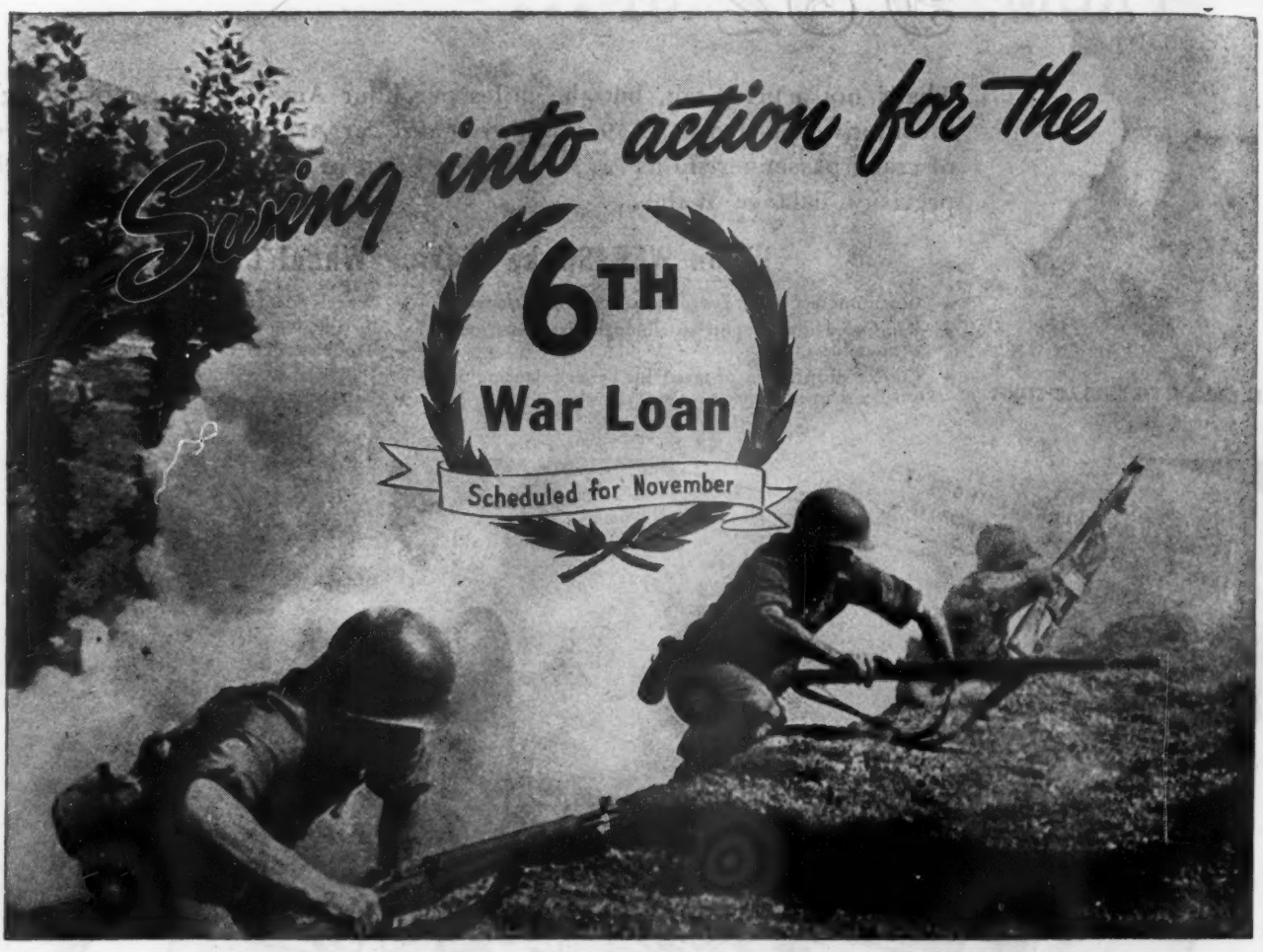
In addition to its equalized driving wheels, the GOWAN & MARX was the first engine to use a blower of the steam-jet type.

From "IRON HORSES"... W. W. NORTON & CO., Inc.



UNION STEEL CASTINGS

DIVISION OF
BLAW-KNOX CO.
PITTSBURGH, PA.



PLAN YOUR PLANT DRIVE NOW!

Good organization will be needed to sell the 6th. The task of raising the huge sum required will be the most difficult ever asked of Industry. As each new military success brings us closer to Victory, the public naturally will feel that the urgency of war financing is lessened—whereas it isn't. So organize now to prevent a letdown on the home-front from causing a letdown on the fighting front. Build your plant's payroll campaign around this fighting 8-Point Plan. You don't have to wait for the official Drive to start—swing into action NOW!

1 **BOND COMMITTEE**—Appoint a 6th War Loan Bond Committee from labor, management and each representative group of the firm.

2 **TEAM CAPTAINS**—Select a team captain, for each 10 workers, from men and women on the payroll—but not in a supervisory capacity. Returned veterans make most effective captains.

3 **QUOTA**—Set a quota for each department and each employee.

4 **MEETING OF CAPTAINS**—Give a powerful presentation of the importance of the work assigned to them. Instruct them in sales procedure. Have them carefully study the Treasury Booklet, *Getting the Order.*

5 **ASSIGNMENTS**—Assign responsibilities for:

(a) *Music, speeches and announcements of the opening rally.*

(b) *Pre-drive letter to employees from management and labor.*

(c) *Competitive progress boards.*

(d) *Meeting schedules, etc.*

6 **CARD FOR EACH WORKER**—Dignify each personal approach with a pledge, order, or authorization card made out in the name of each worker. Provide for a cash purchase or installment pledge. Instruct each captain to put a pencil notation on the card to indicate the subscription he expects to solicit from each worker.

7 **RESOLICITATION**—People don't mind being asked to buy more than once. Resolicit each employee toward the end of the drive in a fast mop-up campaign. Call upon your State Payroll Chairman; he's ready with a fully detailed plan—NOW!

8 **ADVERTISE THE DRIVE**—Use all possible space in the regular media you employ to tell the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

RAILWAY AGE

This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council

Would you believe it?

BALDWIN supplied the hydraulic elevators that raise and lower the stage of Radio City Music Hall.

BALDWIN diesel engines are used for main propulsion units on minesweepers and for auxiliary power on many other vessels.

BALDWIN testing machine of 3,000,000 pounds capacity can be controlled so as to break the shell of a hatching egg without harming the chick.

BALDWIN hydraulic turbines, 115,000 horsepower capacity, driving huge electric power generators, are installed at Boulder Dam.

Baldwin manufactures a wide diversity of products, including testing equipment for wind tunnels, steering gears for LST landing craft, hydraulic elevators for aircraft carriers, and many other machines and instruments, serving industry on which America is depending to speed final victory.

Of course, Baldwin is well known as the builder of locomotives of all types—steam, diesel-electric and electric—doing their share of the greatest transportation job in history.

BALDWIN

BLW THE BALDWIN GROUP

The Baldwin Locomotive Works, Philadelphia, Pennsylvania: Locomotive & Ordnance Division; Baldwin Southwark Division; Cramp Brass and Iron Foundries Division; Standard Steel Works Division; The Whitcomb Locomotive Co.; The Pelton Water Wheel Co.; The Midvale Co.

$88,000 Saved IN LESS THAN A YEAR BY PALLETIZATION

Automatic
TRADE MARK
TRANSPORTER
ELECTRIC PROPELLED

PHOTO AT LEFT: Four men handle the complete shipping operation of these 6″ tanks. Three men palletize and strap while the fourth moves the unit loads to the freight car and also blocks the car. Formerly the full time of 10 men and one third time of 6 carpenters was needed for shipping operations.

CENTER PHOTO: A pallet load is taken up the specially built ramp from the warehouse floor to the loading dock.

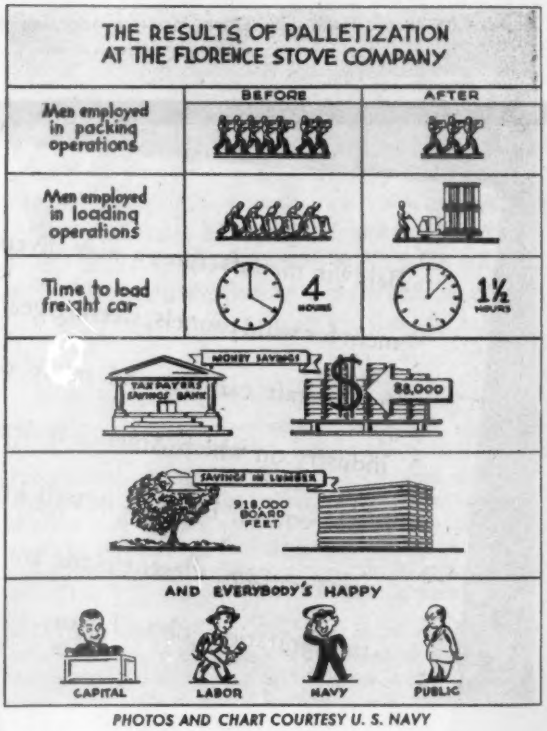
PHOTO AT RIGHT: Placing one of the 18 pallets loaded in every freight car. It now takes this man 1½ hours to load and block a car. Formerly it took four or five men four hours.

Replaces two-wheel hand trucks in a warehouse to handle cartridge tanks . . . CONSERVES MANPOWER, MATERIALS and COSTS . . . . .

Saving No. 1—crating of tanks, previously required, was completely eliminated, releasing men for other work.

Saving No. 2—now instead of the full time of ten men and one third the time of six carpenters, four men perform the entire shipping operation. One man operating an "AUTOMATIC" TRANSPORTER now loads and blocks a freight car in 1½ hours as compared with the old time of four hours when four or five men were used.

Saving No. 3—huge reduction in need for critical fireboard and lumber. 2520 board feet of lumber are saved daily through use of pallets.



PHOTOS AND CHART COURTESY U. S. NAVY

NO STRAINING—TUGGING—PULLING Nor PUSHING with the "AUTOMATIC" TRANSPORTER

POSITIVE MECHANICAL BRAKE • CONTROLS IN STEERING HANDLE • FORWARD AND REVERSE SPEEDS • FRONT WHEEL POWER DRIVE • SHOCKLESS HYDRAULIC PLATFORM LIFT WITH EASY FOOT CONTROL • "DEAD-MAN" CONTROL

WRITE! A complete case history covering this "AUTOMATIC" TRANSPORTER application will be sent on letterhead request.

MANUFACTURERS FOR OVER THIRTY FIVE YEARS *Electric Propelled* **INDUSTRIAL TRUCKS**

AUTOMATIC TRANSPORTATION CO.

DIV. OF THE YALE & TOWNE MFG. CO.

51 WEST 87th STREET — CHICAGO 20, ILLINOIS

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 117 December 9, 1944 No. 24

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y. AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING, CLEVELAND 13: TERMINAL TOWER, SEATTLE 1: 1033 HENRY BUILDING, SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES 14: 530 WEST 6th STREET.

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RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK 7.

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Box Car Has Aluminum Sheathing ***879***

This article discloses construction details of the new car — the first with a complete aluminum exterior above the floor line — which was built by the Great Northern and equipped for use in high-speed express service in passenger trains.

Boy Trackmen Build Good Will ***881***

Despite higher wages in war industries in the Grand Rapids (Mich.) area, the Pere Marquette last summer "sold" 500 high school boys, especially those interested in athletics, on the benefits of "camp life," trained them for extra-gang work, housed and fed them well and by the end of the season had accomplished a large amount of essential track maintenance. The story of the railroad's having achieved besides an enormous public good will is told herein.

Railroads Popular, Their Ills Ignored ***888***

Findings of the opinion survey which recently was completed for the Association of American Railroads, reveal a high in railroad popularity, combined with a depressing lack of public understanding of the threat to railroads from the continued increase in socialized transport.

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The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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PRINTED IN U. S. A.

"Union" Coded Track Circuit Control is particularly useful in C.T.C. territory

WHILE "Union" Coded Track Circuits improve the safety, reliability, and performance of every signal system in which they are employed, they introduce a special feature of economy when incorporated in a Centralized Traffic Control System.

With this combination, trains may be safely directed in either direction, as desired by the operator, without the use of signal control line wires which would be necessary if steady-energy track circuits were used.

As a result, all line wires are eliminated except, of course, the two required for the C.T.C. line, which may also be used for other purposes, and the two carrying a.c. for trickle charging of storage batteries. For details, see Bulletin No. 157. Copies are available upon request.

ARMY E NAVY

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

The Week at a Glance

115-MILE C. T. C.: What the Santa Fe's centralized traffic control between San Diego and a Los Angeles suburb (99 miles single track, 17 miles double) is doing for this road's operations is related in an illustrated article in this issue. The freight traffic on the San Diego line has experienced an increase of 170 per cent since 1940, and total daily train movements rose from 16 a day in 1941 to 42 in 1943. Great congestion arose (this being heavy-grade territory) and the C. T. C. has largely ameliorated this condition, saving about two hours in the time required for freight trains to move over the district.

●

YOUNG TRACK HANDS: High school boys did a lot of track work for the Pere Marquette last summer, and the road provided for the lads so wisely that it made a host of friends from the venture. Capable and respected supervisors were largely responsible for the success of the undertaking, details of which are related elsewhere in these pages. The camp cars were fitted to a high standard of comfort and food served was of the best. Recreational opportunities were provided, and so great were the precautions against accident that not a single time-losing casualty occurred.

●

"MIXED" ECONOMY N.G.: Only two kinds of economic organization—viz: capitalism and all-out socialism—have shown their ability to provide practically complete employment of the working force. The United States prior to the New Deal afforded the outstanding example of the employing power of free capitalism; and Nazi Germany and Soviet Russia, prior to the present war (and practically all countries during the war) have demonstrated that all-out socialism or its equivalent can also find jobs for the entire working force. The distinction between capitalism and socialism lies in their products. Both can achieve full employment, but the former does so by producing enormous quantities of exactly those things that the people want; while the latter produces the things the politicians want. The leading editorial in this issue analyzes this situation—showing how capitalism is the only system which can yield *both* full employment and a high standard of living. The so-called "mixed economy"—with socialistic enterprises competing with the capitalistic—cannot succeed in promoting employment, because it invariably kills as many or more jobs in private business as it creates in socialized enterprises.

●

WHAT SOCIALISM IS: *A socialized enterprise is one which subsists on taxes rather than on the voluntary payments of uncoerced purchasers.* A toll-supported and tax-yielding highway or waterway is essentially capitalistic, whether in government ownership or not. One supported by general taxes, or by charges levied in part on traffic which does not use the particular facility, is socialistic. By business insistence on constant extension of waterways and heavy-duty highways, on the principle of support by taxation rather than by tolls localized on actual users, business interests are a principal factor in propulsion of America down the road to serfdom and destitution.

●

RADIO IN SWITCHING ON Q.: High-frequency, two-way radio communication between 3 Burlington operating offices in the Chicago district and 3 Diesel switching locomotives has been in operation since the end of October, and the work of the installation is briefly described in this issue. The locomotives are engaged in pick-up and set-out work at various industries, team tracks and freight houses, at points remote from offices; and instantaneous communication with them has greatly improved service to shippers as well as increased the performance of the locomotives. The Burlington has decided to extend the installation to the majority of its yard power in the Chicago area and in some other large yards, as soon as wave-length assignments are made available.

●

MORE PERSONNEL STUDIES: The energetic and perspicacious subcommittee on personnel of the A. A. R.'s Railroad Committee for the Study of Transportation has issued three more timely reports (reviewed in our news pages) on personnel practices likely to promote greater railroad efficiency and more satisfaction to employees. One of the reports discusses the advantages of centralized hiring, and the methods needed to make this practice a success. Another deals with suggestion systems, and how to operate them for optimum results. The third report goes into the matter of toilet facilities for employees, a major source of discontent when poorly attended to.

●

ALUMINUM BOX CAR: The Great Northern has built a box car with an all-aluminum exterior above the floor line, described in an illustrated article in this issue. The car is equipped to be operated in high-speed passenger service—with specially-designed trucks, roller bearings, passenger-type draft gear, and through piping for steam and air signal lines. Lettering on the car body is done with reflective material, which is illuminated to the eye when light rays strike it.

●

RAILROAD PROSPECTS: The A. A. R.'s Robert S. Henry made a speech in New York this week, reported in this issue, in which he set forth the available facts on what lies ahead for the railroads. Technologically, he sees no occasion for misgivings as to the carriers' future—because mass movement on steel rails is the only means available for effective transportation of industrial raw materials and products at low cost. As to the railways' prospects as private business enterprise, the speaker was unable to express himself with parallel assurance. It takes a lot of technical superiority and managerial genius on the part of the railroads to keep abreast of the unpredictable billions of free money being poured into that part of transportation which doesn't have to depend upon voluntary investors for its capital funds.

10 MONTHS' EARNINGS: Operating revenues for October were $819 millions (up a little less than 3 per cent from last year). For the 10 months, gross revenues were $7,899 millions (5 per cent better than in the comparable months of 1943). Net railway operating income was $97 millions in October, 14 per cent less than in October a year ago. For the ten months, net operating income totaled $945 millions, 21 per cent lower than last year. Further details are reported and tabulated in the news pages.

●

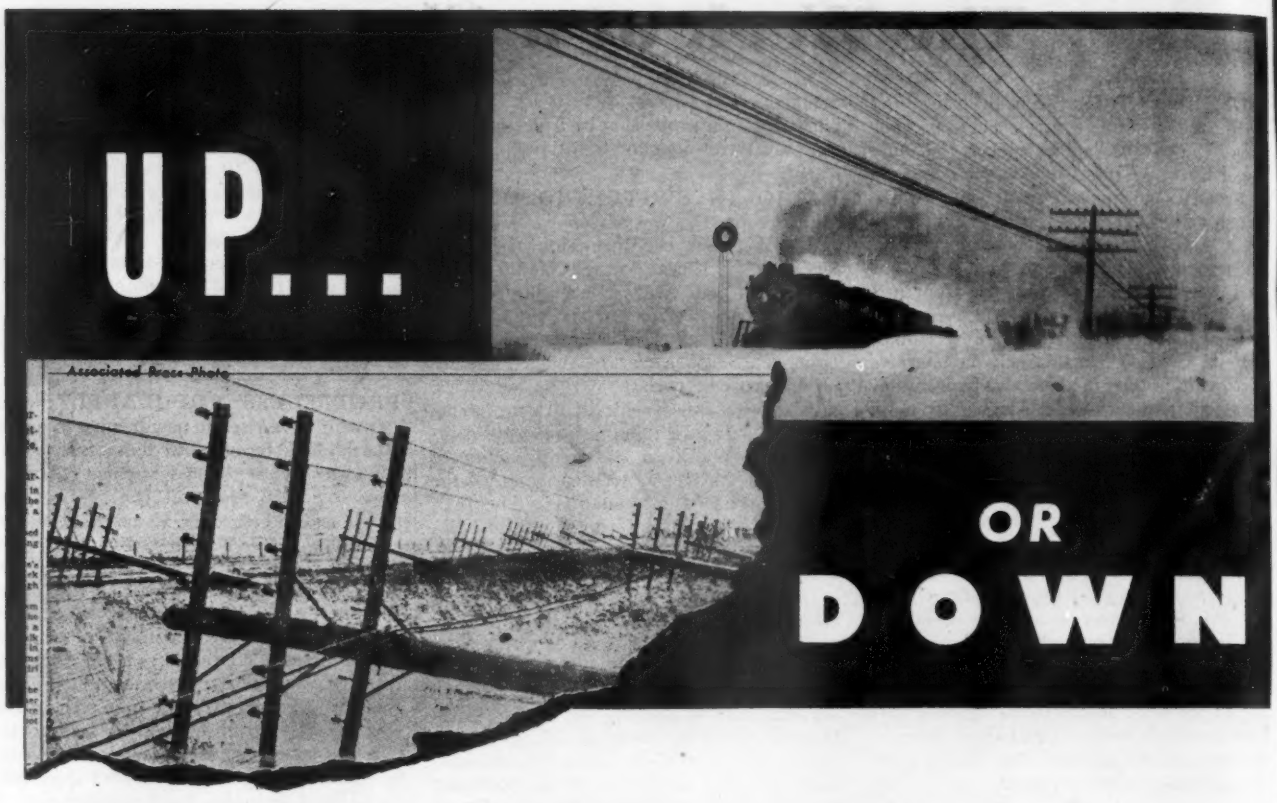
PROFITLESS POPULARITY: The railroads have risen to new heights in public esteem, with the gain to the industry that advocates of war-time government operation have dwindled from 50 per cent of the people in 1941 to only 15 per cent today, according to the fourth annual survey of opinion conducted for the A. A. R. and reviewed briefly in an article in this issue. The survey also discloses, however, that the public is almost entirely without information on the threat to continued railroad efficiency from growing rivalry by government-aided competition. Indeed, most opinions on the subject of government help to transportation are contrary to the facts—a majority believing that the railroads rather than their rivals have been the chief beneficiaries of political favors. Since the people like the results of private operation of the railroads so much, it looks as if they might like to hear more about the means of preserving it.

●

MO. VALLEY COLLISION: The I. C. C. has issued its report (summarized herein) on the side collision at Missouri Valley, Iowa, on September 28. Attendant circumstances in this accident were unusual—cab signals and automatic train control, but no wayside signals; left-hand operation on double track. A passenger train from a subsidiary line was going onto a double-track main line where it had to enter the main track going in the direction opposite to its own, and cross over from that track to the other main track. On the cross-over, the passenger train was hit by a freight train going in the opposite direction. The head brakeman on the passenger train, who set the switches for movement onto the main line, insisted that an indicating signal showed the block to be unoccupied when he set the switches which enabled his train to get in the way of the train that hit it. The freight train did not get a restriction from its a.t.c. apparatus until it was about a half-mile from the point of collision. The I. C. C. finds that electric switch-locking is required to prevent movements making possible such an accident as this.

●

F D R AND AIR LINES: President Roosevelt is reported to have written a letter to the House committee on merchant marine, opposing the granting of certificates for the operation of air lines to "surface carriers"—i.e., railroads and ships. This, of course, is the orthodox party-line view of the socialists who call themselves "liberals," and of the dole-supported air line monopolists who call themselves "free enterprisers." It is not the view of reputable students of transportation.



OKONITE C. T. C. CABLE OPERATES...

Because open line circuits on insulators for C. T. C. systems developed leakage and variable electrical characteristics from adverse weather conditions, The Okonite Company was called on to design and build a two-conductor low-loss code and carrier control insulated cable. This C.T.C. aerial cable was installed in metal rings on steel messenger wire. The messenger wire was fastened directly below the crossarm sections of the poles.

Today, after more than 7 years in operation, this cable still gives excellent service. During this time it has survived storms and floods. Several times, when the pole line itself was down, this cable, although submerged in snow or water, was the *only communication circuit operating in the entire area.*

Based on this experience of using cable rather than open wires, The Okonite Company recently made further developments. This new cable — named Okocentrol C.T.C. aerial cable — has been developed by eliminating saturated braids over the individual conductors and replacing them with an Okoprene covering made with neoprene which is bonded to the conductor insulation by the single strip insulating method.

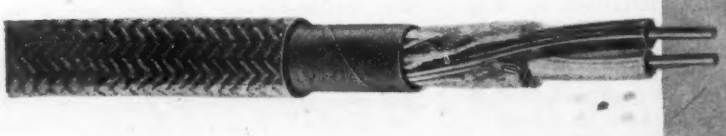
Conductors: No. 10 AWG solid copper (or other desired size or design) with Okoloy coating.

Insulation: 3/64 in. low-loss, low-capacity Okovox insulation with 1/64 in. sheath of Okoprene bonded to insulation. One conductor colored white and the other black for identification.

Protective Covering: The two individual conductors are twisted together with jute fillers and protected overall with a double-wrap of Okolite-faced tapes applied face to face, and covered with a heavy saturated cotton weatherproof braid.

This cable has a mutual capacity at 1,000 cycles (measured dry) of less than 0.152 microfarads per mile.

For further protection in game areas, the cable can be supplied with a metallic tape armor covering. For direct burial, a suitable underground finish can be supplied. Okocentrol cables can also be designed with an in-built copperweld messenger wire bound to the cable with a crimped, spiraled copper tape, making a single unit easily installed in one operation. The Okonite Company, Passaic, New Jersey.



OKONITE

insulated wires and cables

3855

How Provide "Full Employment"?

The way post-war "full employment" is being demanded and promised, and policies being promoted to assure it, show many participating in the discussion know little about what causes either employment or unemployment. Those confidently expecting adequate post-war employment will be grievously disappointed unless many politicians, labor leaders and business men quit promoting methods tending to prevent it.

Virtual or actual full employment can be provided by either of two systems. One of these systems is socialism, under which, as in Russia and Germany, government owns and manages all property, or manages it as if it owned it. The other is free enterprise, "capitalism," under which almost all property is privately owned and managed, and is subjected to government interference only to prevent exploitation by private monopolies and to raise taxes for the ordinary functions of government.

That socialism can provide full employment has been demonstrated not only by the experience of Russia and Germany, but also by that of other nations at war, including the United States; for during the war all the property, man-power and income in this country have been subject to a system of government controls approximating socialism. But the full employment provided in Russia and Germany before and during the war, and in this country during the war, has not been provided *for the same purpose* for which it is being demanded and promised in this country after the war. It has been provided to furnish our and other governments with means of destruction; whereas post-war full employment in this country is being demanded and promised to provide enough services and goods to raise the standards of living of our people. And never in history has it yet been shown that any system of socialism can in this or any other country provide in peace-time enough employment, services and goods to cause a high standard of living for all the people.

Consumers or Politicians as Bosses?

Entirely different is the history of private enterprise. What shall be produced by those employed under socialism and every socialistic policy is decided by *government*. What shall be produced by those employed under free private enterprise is ultimately decided by *the consuming public*—i.e., all the people. For private enterprise is operated for profit; for any private enterprise to make a profit it must sell its product at prices exceeding its costs; and to sell at prices exceeding its costs it must produce what the public can and will buy at such prices. That, while producing for profit, private enterprise in this country usually has provided adequate employment, was statistically demonstrated in an editorial in *Railway Age* of December 2, page 839. During the thirty years 1900-1929, inclusive, American private enterprise, little trammeled or aided by government, and despite fluctuations in business, did provide employment for an average of almost 98 per cent of this country's available labor force; with the result that annual unemployment averaged only about 1,000,000 out of an available labor force averaging 39,356,000.

Why "Mixed Economy" Can't Work

Because there was depression and unemployment averaging 7,200,000 in 1930, 1931 and 1932, the New Deal administration decided that private enterprise had "broken down." Therefore, to assure "full employment," it adopted and now proposes to follow after the war, the policies of a "mixed economy," partly private enterprise and partly socialistic. How successful these policies were before the war is indicated by the fact that in the eight years 1933-1940, inclusive, unemployment averaged 8,855,000, or 17 per cent of the labor force, and in 1938 and 1939, the last two years before we began spending for war, averaged 9,300,000. The "mixed economy" did not work in peace-time then, and it never will work in peace-time, because when socialistic policies are mixed with private enterprise in peace-time the employment by private enterprise that they prevent is inevitably greater than the employment by government that they cause. The socialistic policies of a "mixed economy" curtail the profits, and therefore the employing power, of private enterprise by subjecting it to undue controls and excessive labor costs, and especially to excessive taxes used by government spenders to create tax-free or virtually tax-free property—housing, power plants, highways, waterways, airports and so on—which unfairly competes with heavily taxed private property.

The people of the United States, whether they know it or not, are choosing now whether they will return to the system of private enterprise which formerly provided virtually full employment in this country, or will continue more and more socializing the nation's economy until they establish complete socialism. For a "mixed economy" will never provide enough employment and production, and the more it is tried the farther we will advance on the road that Germany traveled to Nazi socialism.

That New Jallopy

The volume of railway passenger traffic to be expected immediately after the war will be vitally affected by the speed with which the automotive industry can be reconverted to the production of automobiles for civilians. Gasoline rationing will undoubtedly no longer be a factor, and the rubber situation appears to have been put on a basis which would enable automobile owners to secure enough tires, of synthetic rubber or otherwise, to fill most of their needs. Unquestionably, as soon as the war is over, the Army will release many jeeps and kindred vehicles for civilian use, but these will have but small effect upon railway passenger traffic. Anyone who has ever ridden in a jeep admires the sturdy qualities of these cars but also realizes their unsuitability for long distance touring. Therefore, the extent of the immediate inroads of the private automobile on railway passenger traffic will depend rather largely upon the speed of the reconversion of the automotive industry.

This industry has been giving a great deal of thought to reconversion with the idea of accomplishing it as speedily as possible. The most optimistic prediction yet advanced is that such reconversion will take at least six months. One automobile company estimates that it needs 3,600 new machine tools as replacements for tools lost at the time of the conversion to war production in order to resume car production at the rate of 50 per cent of its 1941 schedule. The reports of other companies indicate that the production of machine tools will be one of the principal bottlenecks in delaying reconversion, since it takes months to design and build many of the machines used in automobile plants (16 to 20 weeks for a drill press, for example) and in other cases it takes weeks to set up such machines for operation. Of course, it is possible that the machine tool companies will begin to build these replacement machines in advance of the date that the starting signal is given to automobile manufacturers.

The manufacturers of automobiles have to depend on many suppliers for the large number of parts that go into the vehicles, and a big preparatory job will be necessary to determine how quickly all these suppliers can resume their pre-war functions. This is important because most of the parts makers must also reconvert their plants from war business and get their production lines running. A further factor is the time needed to clear the automobile plants of the present war supplies which they contain. One automobile company alone has some $50,000,000 worth of government-owned equipment and over 100,000 tons of material in every stage of refinement from rough billet to finished assembly scattered around its 17,000,000 sq. ft. of floor space.

Thus it would appear that for a year or more after the war the railways will continue to have the bulk of the total passenger traffic moved in this country. It is unlikely, in view of returning soldiers and the vast displacement of population brought about by the closing of war plants in certain areas and the opening up of civilian production in other areas, that the volume of this traffic will soon diminish much. And, from the standpoint of man-power and probably of new passenger cars, the railways will be able to supply better service than now. Therefore, the interval between the end of the war and the time when private automobiles again become a main factor in competition, may be a crucial period in determining the future volume of railway passenger traffic. If the railways bestir themselves to give the best passenger service possible during this period many war-time passengers who are now familiar only with crowded conditions and relatively poor service may be sold on the convenience and comfort of travel by railway to the extent that they will continue to use such service in satisfactorily large numbers.

Studied Inefficiency

It is characteristic of many of us that we like to do things a little better than the other fellow or do them as well in a different way. A limiting factor, however, enters the picture when we set ourselves in competition with specialists and hope to better their results—we do not know enough. Recently the chief engineer of a large manufacturer explained to a group of railroad men why certain design features had been adopted in the railroad specialty which it furnished and why certain maintenance practices and materials were specified. He was not critical of those who were failing for any reason to follow the recommended maintenance standards, but was emphatic in stating that no road which did not do so could hope to obtain maximum efficiency from the product.

In the paper the speaker reviewed the extensive laboratory-and-service-testing procedures which had been followed in arriving at the maintenance standards which had been set up. In spite of the work done by this manufacturer and others in the field, some roads still follow practices at variance with those recommended and use materials which fall short in quality.

Where such standards have been set and are known, as such standards presumably are known, any individual or road failing to follow them must do so deliberately. There can be no quarrel with them if, at the end of their study, they have achieved equivalent or better results. But, where the evidence is that they are still below the level of service life and trouble-free operation being attained by those who adhere to the standard, persistence in error is both inefficient and expensive.

It would seem, therefore, that where manufacturers have established minimum specifications for materials used in maintenance of the equipment they make or rules for operating or servicing it, users would be wise to adhere to these standards. Regarding these as minimum requirements, as they usually are, users still have a considerable field open to them in attempting to

News Reports: "The government is on the point of appropriating $1½ billions to subsidize highway construction and another billion for waterways, with the St. Lawrence project and '7 more T. V. A.'s' in the offing—all with the support rather than the opposition of business interests. The C. A. A. is asking a billion for federal aid to airports. Meantime, 'Fortune' reports that the railroads could spend $10 billions in economically justifiable and job-creating improvements, without cost to the taxpayers, if there were only not so much uncertainty of their future traffic, earnings and credit."

improve performance. But it is foolish to disregard them entirely in an attitude which seems to imply that a manufacturer may know how to design and build a product, but is in no position to suggest what should be done to maintain it.

Why Transportation Is Drifting into Socialization

1. Every responsible military leader and industrial traffic executive agrees that efficient and up-to-date railroad service is an essential part, alike of an adequate system of national defense and of an economy that will provide the production and employment requisite to national prosperity.

2. It is equally beyond dispute that no private industry can be kept up-to-date without the ready availability of investment capital. Bitter experience has shown that any large additions to railway investment must come through equity financing rather than by an increase in fixed interest obligations. Railroad stocks are selling on the Dow-Jones average at little more than 40. Until their prices greatly increase, the railways cannot count on financing the improvements needed in the national interest, by the only means of sound private financing.

3. The predominant objective being an efficient railroad system kept that way by the constant availability of adequate capital for improvements and modernization, the only alternatives by which such a capital supply can be obtained are (a) the correction of the conditions which make sound private financing impossible or (b) resorting to financing from government sources.

4. Pursuing alternative (a) and endeavoring to surmount the obstacles which stand in the way of financing through the sale of equities, it is necessary, first, to determine what these obstacles are. It is evident that low prices for such securities are not due to current railway net earnings. Railway equities sold at an average of better than 140 in 1928 when net operating income was approximately equivalent to what it will be in 1944. Therefore *prospective* net earnings account for investors' lack of enthusiasm for railway equities. This lack of confidence could arise from causes (i) common to all industry, or (ii) peculiar to the railroads. But the Dow-Jones average of industrial stock prices stands at around 145 while the railroad average is less than 45. That is, industrials, generally speaking, can raise all the investment money they desire by equity financing while the railroads, also generally speaking, can raise little money by this method. It follows that the obstacles to the railways' securing a supply of capital, adequate to the public need for modern railway service, lie in conditions which are peculiar to the railroads, and which they do not share in common with other industry.

5. Conditions which the railroads share with other industry are the present and prospective state of general business activity, and government policies of taxation and of support for the demands of organized labor. The lack of enthusiasm of investors for railway equities cannot be attributed to these conditions, because they are the same for industry with stock selling at 145 as they are for the railroads with an average stock price less than 45.

6. Economic and political conditions *peculiar to the railways* include (a) rigid regulation of rates, finances, and operating practices by the I. C. C. and state commissions; (b) present and prospective competition of unpredictable government expenditures for long-haul highways, waterways, airports, and denial to railways of the

right to use these tax-free and tax-supported facilities; (c) uncertainty of railways' legal status because of the Justice Department's attitude that the Anti-Trust Act takes precedence over the Interstate Commerce Act.

7. Of these three unfavorable circumstances peculiar to railways' environment, (a) existed in the 'Twenties, when railway equity prices averaged generally above 100. (c) is of recent development and has brought with it no readily detectable worsening in the railways' market status.

It follows, by elimination, that the principal depressant to the status of railway equities and, hence, of the carriers' ability to finance themselves by sound means to a degree adequate to their continued modernity for the national defense and national industrial efficiency, must be circumstance (b), the continued proliferation of competing transport facilities, financed by the taxpayers rather than by users' contributions; and the denial to the railways of an opportunity themselves to use these facilities provided by the generosity of the taxpayers.

Since railway service of a quality adequate to the national defense and industrial efficiency must take precedence over preference for railroad financing wholly from private sources, it follows further that either (I) superhighways, waterways, and air transport facilities must be made self-supporting by tolls paid by users or (II) railway improvements must be financed by gifts from the taxpayers, just as rival facilities are built; and railway property must be similarly freed from *ad valorem* taxation.

Advocacy of the proposed enormous expenditures for superhighways and supercanals—without any limitation of their magnitude but the liberality of the legislators, and with no provision for compensatory tolls—is just another way of advocating that the era of railroading as a strictly privately-financed business should be brought to a close. There are a lot of miscellaneous observations, of varying interest and importance, which can be made about the railroads—but the foregoing is the central and simple fact of their situation. It is the duty of the railroads and industrial traffic men who understand this situation to make it known to the public. Continued tenderness toward the business interests which are the instigators of this treason to free enterprise is a disservice even to them, because they will lose too, along with all other Americans, if the nation's deterioration into general socialization is not arrested.

"Like Eating in Jail"

It was one of those unwelcome Sundays in late fall. A steady drizzle played against the windows of the sleek streamlined observation-club-lounge car on the rear of an all-Pullman train. Despite the bedraggled, dirty pre-winter appearance of the small manufacturing towns of the Mid-west, there was luxurious comfort in the lounge—a car tastefully decorated, well-lighted and furnished with comfortable furniture. That these surroundings helped promote an air of good-fellowship was evidenced in the several pleasant conversations that were being carried on simultaneously in various parts of the car.

To the casual observer, all of these conversations seemed well-modulated and "confined" by the carefully designed acoustics and the sound-absorbing or dampening qualities of the materials that evidently had been selected for this very purpose. A light colored ceiling and well-applied system of indirect lighting provided adequate light even for reading in the central part of the car, and the observation section was well lighted by a series of ceiling spot lights. The two-tone color scheme of the sidewalls, relieving draperies, venetian blinds, the well-chosen furniture and the complementary tone of the thick carpeting helped produce the atmosphere of a traveling club room. Here tired passengers relaxed and in their attitudes showed their appreciation of the accommodations.

From the spacious master rooms to the open sections, the remainder of the Pullman consist reflected varying degrees of comfort even in over-crowded wartime with its over-taxed passenger facilities. But what a contrast in the dining car! "This is like eating in jail," was the comment of the striking young naval officer after his cordial "Good evening, sir," broke the ice for an interesting *tête á tête* at evening dinner.

The occasion for his opening remarks was the gloomy, ill-chosen interior decoration of the dining car. The old-ivory ceiling with its dome type diffusing lights wasn't a bad beginning—but the sidewalls, to a height of about six feet, were painted a solid drab, depressing, slate-mud color which the painter had attempted to relieve by a light hairline. As if this were not enough, the framework of the doorways and the steward's cupboard were painted a dark brown.

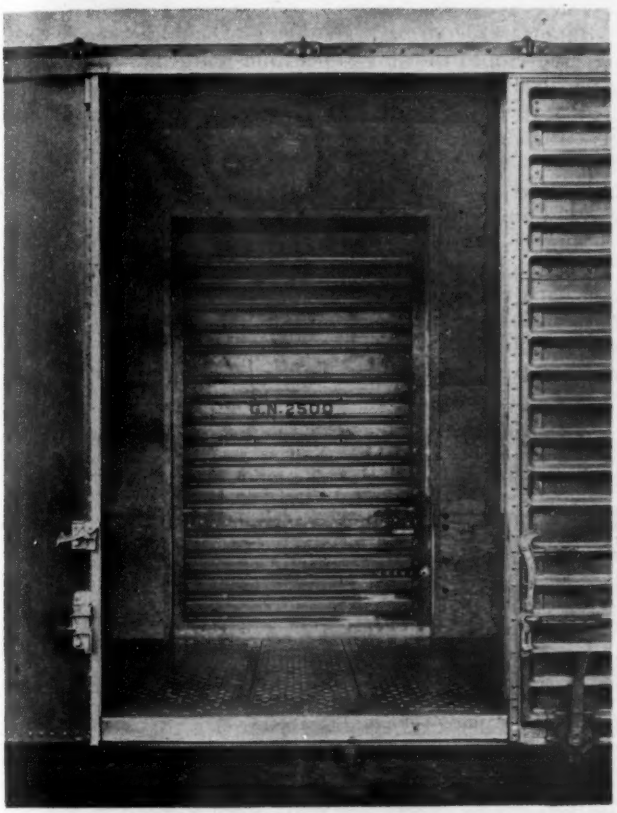
Even though the service and food were good, the waiters and the steward polite and solicitous, not to mention the good-humored efficiency of the colored waitress who served this table, it was evident that the railway dining service had two strikes on it to begin with—at least in the opinion of the naval officer.

"The X. Y. Z. Railroad really has very attractive dining cars," the officer volunteered in continuing the conversation, "and the contrasting depression of this diner is at such variance with the rest of the train that I am at a loss to understand it."

Although paint is among the many materials whose ingredients have been restricted, as far as civilian supply is concerned, these restrictions have never reached the point which dictated the use of such a drab and depressing interior finish as exemplified in that dining car. The paint job was comparatively recent and its application would hardly have made any appreciable difference in the man-hours involved if more suitable colors had been selected. The proper selection of materials, good design and good taste are elements that rank high in public relations and which will be even more important after the war.

Box Car Has Aluminum Sheathing

Great Northern's 50-ton steel-frame plywood-lined car utilizes all-aluminum exterior to reduce the weight by 4,057 lb.



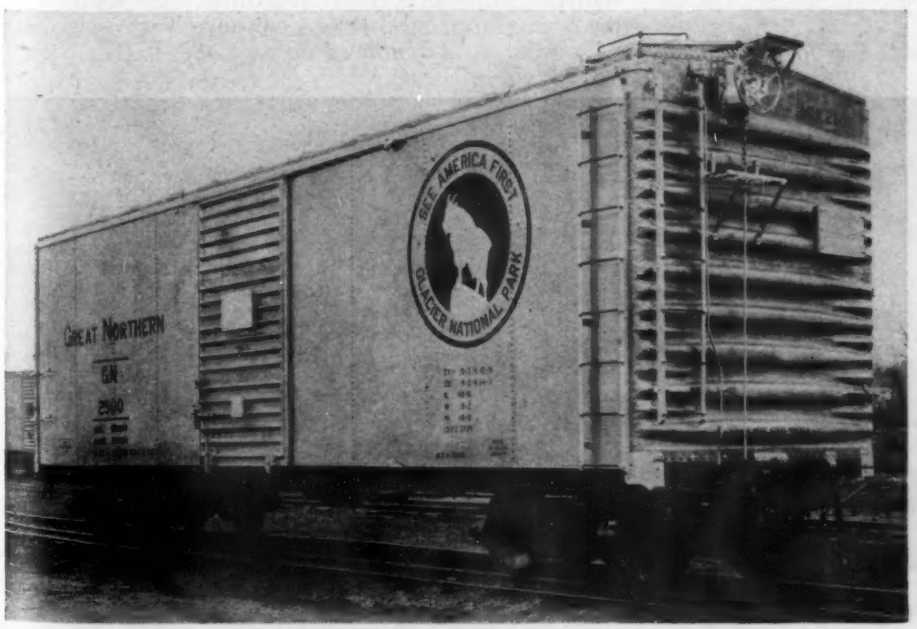
Aluminum-Alloy Doors, Perforated Floor Protector Plates and Threshold Plate

THE Great Northern has recently completed construction of the first box car with a complete aluminum exterior above the floor line. The car was designed by engineers of the Great Northern and the Aluminum Company of America. Equipped so it can be used for high-speed express service in passenger trains, the car was built at the St. Cloud, Minn., shops where the railroad is now engaged in quantity production of the all-plywood steel-frame box cars authorized earlier in the year.

Trucks for the aluminum-sheathed car are of the American Steel Foundries Type-A3 Ride-Control design, developed particularly for this class of service. One-wear steel wheels are installed with journal boxes to be supported in Timken roller-bearing boxes. To permit operation ahead of other equipment in passenger trains, the car has a steam trainline, signal line and Type AB-1B air brakes which automatically cut in or out a passenger brake feature, dependent upon whether the train signal line is under pressure or not.

Reflective Monogram and Lettering

Another small but important detail in which this car is believed to be first is the use of a reflective material for monograms and lettering on the aluminum exterior. By using this, words, numbers and monograms on the sides reflect light and show up to motorists at crossings in full shape and color as well at night as they do in daylight. The reflective material is Scotchlite, made in roll form by the Minnesota Mining & Manufacturing Co., St. Paul, Minn. It is described as a flexible sheet consisting of millions of minute glass spheres coated in a synthetic resin for protection against weather and water. The sheet material is cut to shape and cemented to the car sides by means of a waterproof synthetic resin adhesive. The tiny glass spheres give the material its property of sending the light falling on it from the headlights of an oncoming car back to the driver so that it appears approximately 100 times brighter than if the insignia were ordinary paint.



The glass spheres serve to focus the incident light just the way a glass lens focuses the rays of the sun. This focal point of light is reflected by an aluminum powder pigment at the back of the sheet and out through the same sphere which acts as a projecting lens, thus returning the light in a more usable direction back to the driver.

The Roof, Running Boards and Upper Car Ends Are of Aluminum Alloy

The reflecting property of this new material for luminous monograms and lettering is maintained in part even though the car is as much as 30 deg. on either side of the crossing, making the insignia visible for considerable lengths of time.

In the case of the Great Northern car, the familiar goat in the monogram is made of silver Scotchlite, surrounded by a red Scotchlite field and concentric outer ring. These two types reflect their characteristic color at night as well, giving the same color effect day and night. The letters are made of a black Scotchlite which appears black in daylight but reflects similarly to the silver at night.

How the Car Is Constructed

The new Great Northern box car has a nominal capacity of 100,000 lb., with inside length of 40 ft. 6 in.; width, 9 ft. 2 in.; height, 10 ft. The car is constructed with the same welded carbon-steel underframe and side frames as the plywood car which was described in the *Railway Age* of August 5, 1944. The parts of the car, made of Alcoa high-strength aluminum alloys, include outside sheathing, roof, corrugated ends and W-corner posts, doors, floor protective doorway plates, running boards, brake steps and other minor parts. The interior car sides, ends and roof are lined with plywood which has been treated with a special waterproof compound. All interior surfaces are sanded and varnished. The car weighs 43,500 lb.

In general, aluminum-alloy rivets (up to 5/8-in. diameter), driven cold, are used for joining all aluminum sheets except the two-piece corrugated ends which have a horizontal weld seam extending across from one side of the car to the other. The aluminum used in this car weighs 3,722 lb. and is estimated to save 4,057 lb., as compared with equivalent parts in the steel-plywood car. The light weight of the car does not reflect this saving, largely because of the addition of the steam trainline and connectors, signal line and special brake equipment applied to adapt the car for use in head-end passenger-train service.

Important detail parts of the car, including specialties, were developed in full co-operation with the manufacturers who used existing dies to form the aluminum sheets cold, subsequently heat-treating them when necessary to give the desired physical properties. For example, the combined Dreadnaught corrugated ends and W-section corner posts, supplied as a unit by the Standard Railway Equipment Manufacturing Company, are made of 1/4- and 3/16-in. aluminum sheets and weigh 970 lb., as compared with 2,750 lb. per car set in steel. The Murphy improved riveted aluminum-alloy roof, including .078-in. roof pressings, .125-in. aluminum caps, running-board saddles and corner caps, made by the same company, weighs 663 lb., as compared with 1,925 lb. in steel. These individual roof sheets and parts were shipped to the St. Cloud shops where they were assembled in the same jig used for making steel car roofs, riveted together and applied as a unit to the car frame.

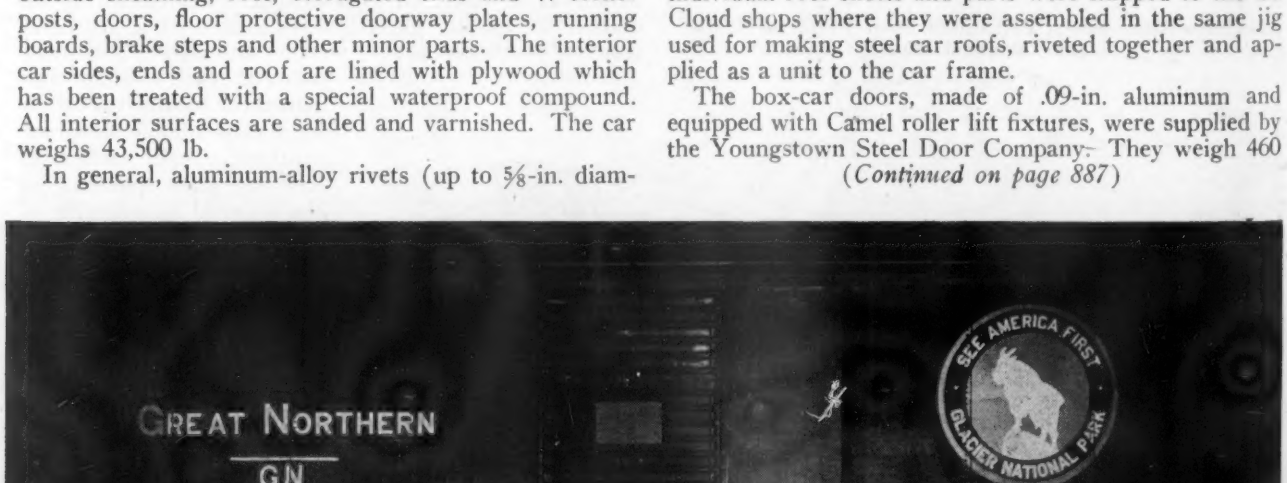
Comparative Weights (Per Car Set) of Parts of the G. N. Car

	Aluminum alloys, lb.	Carbon steel, lb.
Roof, including running-board saddles and corner posts	663	1,925
Ends, complete with W-section corner posts	970	2,750
Doors, complete	460	1,042
Running boards, longitudinal and lateral	180	262*
Brake steps	4	11
Perforated floor protector plate	136	290
Threshold plates	35	84
Door post protectors	7	20
Exterior sheathing, 1/8-in.	1,267	1,395*
Totals	3,722	7,779
Net saving effected by using aluminum	4,057 lb.	

* Wood as used on plywood cars. Had these parts been made of steel, the running boards would have weighed 390 lb. and the 0.10-in. exterior sheathing, 2,870 lb. In that case the saving as a result of using aluminum would have been 5,660 lb.

The box-car doors, made of .09-in. aluminum and equipped with Camel roller lift fixtures, were supplied by the Youngstown Steel Door Company. They weigh 460

(*Continued on page 887*)



Scotchlite Reflective Material Provides Exceptional Night Visibility of the Name and Insignia of the Road

Boy Trackmen Build Good Will

Two extra gangs on the Pere Marquette, composed entirely of high school boys and featuring good housekeeping and modern training methods, were a big success from the standpoint of the boys, the railway, and improved public relations

Because of the Excellent Working and Living Conditions All of the Boys Gained Weight During the Summer

FROM a public relations standpoint, one of the most effective things done by the Pere Marquette in a number of years was the employment of high school boys in track work on its Chicago-Petoskey division during the last summer. This resulted not alone in interesting many boys and their families in the railroad itself, but in gaining wide publicity concerning the boys and their activities. In addition, and equally important, the railroad accomplished through the boys a large amount of essential track maintenance work which, because of the shortage in track labor, could not have been done otherwise.

High school boys had been employed by the Pere Marquette in track maintenance work to a limited extent during the summer of 1943, but, faced with a large maintenance program and a severe shortage of labor, it was decided to recruit a larger number of these boys for track work in 1944. As a result, approximately 500 boys were employed in section and extra-gang work during the months of June through August, more than 100 being recruited from the high schools of Grand Rapids, Mich., alone. The boys from Grand Rapids were grouped in two extra-gangs of 50 boys each and were quartered in special boys' camps, while the remainder of those hired from other towns along the line were added to local section or extra-gang forces.

At a conference early in 1944, the idea for establishing two boys' camps developed, and it was suggested that track work, combined with camp life, could be "sold" to many high school boys, especially those interested in athletics, as an ideal way to condition them for football and other sports in the fall. This idea took hold rapidly, and a plan was finally developed for establishing two separate camps for 50 boys each, to be supervised by school coaches and instructors, who were to live with the boys and act as counselors and timekeepers.

In putting the plan into effect, two men—H. B. Lyon and Clarence E. Meyer—were selected to go to the various high schools in Grand Rapids to line up men for counselors and timekeepers, and to promote the idea of camps with the boys. Mr. Lyon, assistant supervisor of track, had been in charge of labor procurement on the division for more than a year, and Mr. Meyer, who was head of the English department at Grand Rapids Junior College, had served on the railroad as a gravel inspector during the previous three summers. When these men had selected counselors and timekeepers, largely because of their knowledge of athletics and understanding of boys, recruiting was begun. When the boys were told of the opportunity to work on the railroad and to live in their own camps with men they had learned to like and respect from their own schools, the rush for applications started and the railroad had soon signed up enough boys for both camps, with a sizable waiting list, in spite of the higher wages offered by a number of war industries in the Grand Rapids area.

Model Camps

While recruiting was under way, arrangements proceeded for housing the boys and 18 box cars were selected, stripped down to the trucks, and rebuilt with new material, inside and out, into bunk, kitchen, dining and foremen's cars. Plans called for locating one camp, entirely of outfit cars, near Holland, Mich. The other camp, to include hutments for sleeping quarters and outfit cars for the kitchen, diners, etc., was to be located near Breedsville, Mich. The Holland outfit consisted of 5 bunk cars, 2 diners, 1 kitchen car, 1 commissary car, 1 counselor and timekeeper's car, 1 tool car, 1 water tank, and 1 shower car. At Breedsville, the outfit had 5 hutments instead of bunk cars, these hutments being portable, prefabricated structures, with insulated side walls and ceilings, which were secured from the Aladdin Manufacturing Company, Bay City, Mich. Supplementing these, the Breedsville camp included cars similar to those in the Holland camp.

All of the bunk, dining, kitchen and counselors' cars were painted a light olive-green inside and a standard box-car red outside, while all of the hutments were painted

olive-drab both inside and out. All of the living and eating quarters were fully screened.

All equipment in both camps was new, including beds, mattresses, pillows, blankets, tableware, etc., and each camp was equipped with electric lights and with hot and cold running water in the shower and kitchen cars. The water in each camp was secured from a driven well equipped with an automatic-electric pressure pump, and was checked repeatedly by the State Health department for its purity.

Women cooks were secured to give the camps a more home-like atmosphere and an effort was made to supply the boys with the best food that could be obtained. Menus were prepared jointly by Mr. Lyon and the cooks to insure a balanced diet and an adequate calorie count. As a part of their meals, an abundance of milk was provided, and the records show that each gang of 50 boys drank from 30 to 35 gal. of milk a day. Weight charts kept for each boy by the counselors showed that practically all of them lost weight during the first three or four days at work. Then, however, they began to build up, and by the end of the summer all of them weighed 5 to 20 lb. more than at the beginning of the season.

Special Training Provided

A week before the boys were to go to work, meetings were called for those to be housed in the two camps, to which their parents were also invited. At these meetings the boys were told why they were needed on the railroad, what would be required of them, and how they would be expected to conduct themselves. Details of how they would be housed, fed, etc., were also explained, and they were told how they should dress. Safety shoes were stressed, as a result of which about 90 per cent of the boys purchased such shoes. In addition, an effort was made to make the boys railroad conscious, and to this end the motion picture "Men of Maintenance" was shown, together with a part of the Pere Marquette's visual training program for maintenance employees. At the close of the meetings the parents and boys were invited to ask questions and a friendly discussion followed.

The week-end before the boys were to leave for work—not overlooking the favorable publicity inherent in the boys' camp idea—one set of camp outfit cars and one of the hutments were brought to Grand Rapids and were placed on display near the passenger station and, through publicity in the local newspapers, the parents and anyone else interested were invited to inspect the equipment. On the one day that the equipment was on display it was visited by approximately 2,000 people, many of whom indicated a new feeling of good will for the Pere Marquette, and for the activities of the railroads in general.

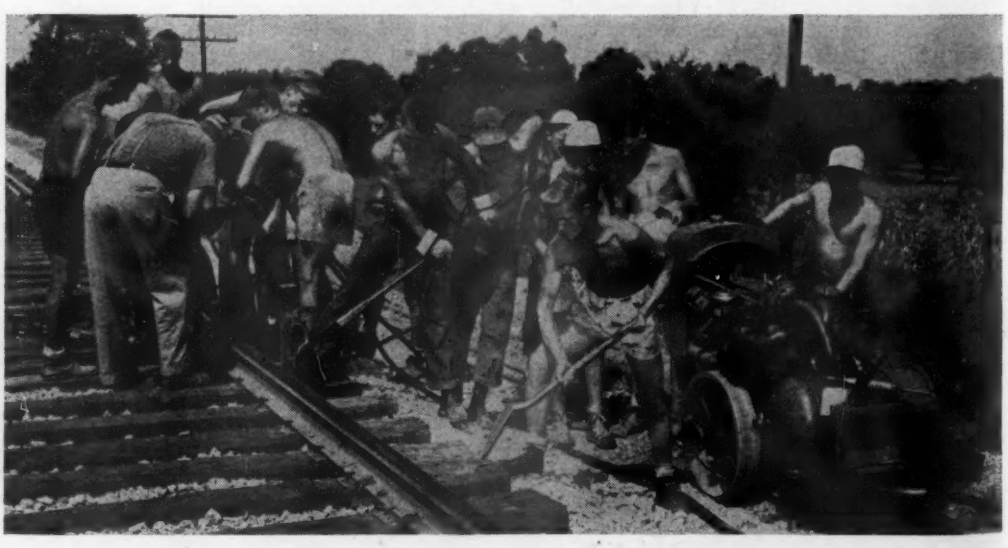
The boys' camps were established on June 16, and closed on September 2. The first day the boys were given a "chalk" talk, in which was explained the necessity for the work they were to do, what the heavy traffic was doing to the track, why ballast and ties had to be renewed, and how reballasting was accomplished. Later in the day, and repeatedly throughout the summer, the boys were instructed in the methods of doing specific items of track work, and in all of these discussions safety was emphasized. As a result of these precautions, not a single serious or lost-time accident occurred to the boys in either camp.

Much Work Accomplished

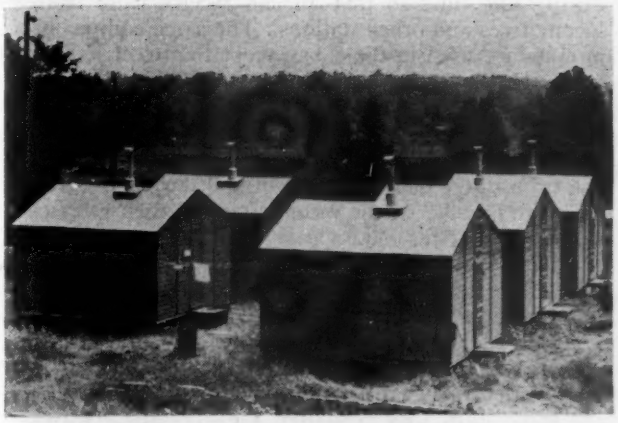
The camps in each case were located two miles from town at about the center of the work assigned. The gang at the Holland camp worked on a stone ballasting job, where gravel ballast was being replaced with stone out-of-face, with the usual renewal of crossties and other incidental work. This gang was also employed on adjoining sections in tie renewals and in surfacing of the track. The Breedsville gang was located in gravel ballast territory, where the work consisted mostly of cleaning out the foul ballast on the inside of several curves, along with somewhat heavy crosstie renewals, and was also employed in other locations on out-of-face surfacing, giving the track a light running lift of 1½ to 2 in.

The greatest care was exercised in selecting the foremen and assistant foremen to supervise the work of the boys, to secure exceptionally capable trackmen of high character, and when instructing them concerning the handling of the boys, emphasis was placed on the fact that the boys could not be handled like the older men in regular track gangs. Furthermore, they were instructed not to expect as much production from the boys as from experienced men. As a result of these precautionary measures, the boys got along well with their foremen and produced highly satisfactory results, although it was estimated that their over-all output was only from 60 to 70 per cent of what might be expected from a seasoned gang of track laborers.

Adequate provision was made for the off-time recreation of the boys, even to the extent of providing, with the co-operation of Holland and Breedsville, nearby fields where the boys could play football and baseball. The



For Most of the Boys the Summer's Experience Was Their First Opportunity to Learn About Railroading



Prefabricated Hutments Were Used for Sleeping Quarters at One of the Camps

To Provide a More Home-Like Atmosphere Women Cooks Were Employed at Both Camps

railroad furnished some of the athletic equipment required, and both camps organized teams which played games with the teams of the nearby towns. In addition, the railroad supplied trucks in which the boys were driven to a beach on Lake Michigan one night each week for a swim, and on another night in the week they were allowed to go to the movie in town. Each weekend they were given transportation to return home, with understanding that they would be back in camp on Sunday evening.

Expect to Repeat the Experiment

The Pere Marquette is well satisfied with the work which was done by the high school boys on its lines during the past summer, and particularly with the success of the boys' camps, and looks forward optimistically to repeating the experiment in 1945, possibly on a larger scale. The employment of the boys was under the general direction of H. A. Cassil, chief engineer of the road at Detroit, Mich., while the two camps were under the general supervision of C. J. Millikin, superintendent, and T. F. Burris, division engineer, both located at Grand Rapids.

Burlington Uses Radio to Direct Switching

A TEST installation of high-frequency radio has been in service on the Chicago, Burlington & Quincy, since October 28, for two-way telephone service between three Diesel-electric switching locomotives and three offices in the Chicago area. The offices are those of the assistant superintendent at Fourteenth street, the yardmaster at Western avenue, 3.5 mi. west of the Fourteenth street office, and the trainmaster at Morton Park yard, 5 mi. west of Western avenue.

The three radio equipped locomotives are being used to deliver cars to various freight houses, team tracks and industries, as well as to pick up cars at these locations and return them to freight yards. In this service, the switching locomotives are working for periods of several hours at a time, at points remote from open offices of the railroad. The radio telephone between these locomotives and the three offices has improved switching service to shippers and has increased the utilization of the locomotives. Based on these results, Ralph Budd, president, has directed that as soon as authority and wave length assignments are issued by the Federal Communications Commission, radio communication be installed permanently on a major proportion of Burlington switching locomotives in service in the Chicago area and elsewhere in certain large yards.

These tests in the Chicago switching district follow a preliminary test made on June 15, between a yard office and an instruction car operated between Chicago and Downers Grove, Ill., a distance of 20 mi., and others made between the head-end and rear-end of freight trains operated between Chicago and Denver, Colo., and between Chicago and Kansas City, Mo., during the period from July 1 to September 30.

The radio unit, which sends all messages from three remote offices to the three locomotives, and receives all communications from the locomotives, is located on the fifth floor of a warehouse at Fourteenth street. The units on the three locomotives are located in the cabs. The four units, which were furnished by the Radio Division of the Bendix Aviation Corporation, are V. H. F. type employing amplitude modulation and operating at a frequency of 156.525 megacycles. The input to each unit is 21 watts and the maximum output is 10 watts. The power supply for the fixed unit is public service 110-volt 60-cycle a.c. rectified to the necessary plate and filament energy required by the receivers and transmitters. The power supply for each mobile unit is a 28-volt motor-generator set, fed by the batteries of the locomotive.

The antenna at Fourteenth street, a ½-wave dipole

A Radio Unit (Marked X) Is Located in Each Test Cab

type, is mounted on a 36-ft. steel pole located on the roof of the building at Fourteenth street, or 129 ft. above the ground. It is fed with a coaxial cable extending from the transmitter on the fifth floor. It is a directional beam type, having one reflector and two directors parasitically excited. Because of its location and the ability of the beam to fan out into a cone with a diameter of 15 mi. at a distance of 20 mi., the output of the transmitter is confined to the area in which the locomotives are operated with a resulting strengthening of signals.

The antennae on the locomotives are 36 in. tall and are located 12 ft. from the top of the rail on the front end so that the metal cab will not act as a reflector. They are ½-wave vertical types with a ¼-wave horizontal matching stub. They are fed with coaxial cables.

The unit at Fourteenth street is connected by wire to three remote control points including the office of the assistant superintendent of the Chicago division, which is located on the first floor of the warehouse containing the radio unit; the office of the yardmaster at Western avenue, 3½ mi. west of the radio unit; and the office of the trainmaster at Morton Park, 8½ mi. southwest of the radio unit. Each of these offices contains a relay switch, a loud speaker and its amplifying unit and a standard cradle-type telephone set containing a microphone and a receiver. All instruments are connected to the wires from the radio unit at Fourteenth street through the relay switch. This switch activates a relay on the radio unit which throws either the transmitter or the receiver of the unit in circuit with the head set or the loud speaker. The three microphones at the control stations are Westinghouse Electric & Manufacturing Company F-1 transmitters. All loud speakers are in circuit during idle time so that all can receive calls from the locomotives and other stations. The same equipment and circuits are used in the cabs except that electric-dynamic microphones are employed.

J. H. Gilfillen, Trainmaster at Morton Park Yard, Speaks to the Engineer of a Radio Equipped Switching Locomotive Over the Temporary Installation in His Office. In the Picture Are a Foot Relay Switch, a Loud Speaker and Its Amplifying Unit, and a Telephone Hand Set

When one of the remote-control points wishes to call a locomotive, the operator presses the relay switch which places the transmitter in the telephone set in circuit with the transmitter of the radio unit at Fourteenth street, he calls the number of the locomotive and then releases the switch so that his loud speaker and receiver in the telephone set will again be connected with the receiving unit. The call is heard over the loud speakers in the three cabs and over the loud speakers at the other remote-control points. The operator of the locomotive called answers, first pressing his relay switch in order to connect the transmitter in his telephone set with the transmitter of his radio unit. After talking, the operator releases the relay switch.

The tests which have been carried on thus far, have been confined to a 15 mi. area but communication has been maintained as far as LaGrange, a distance of 20 mi. They have shown possibilities for speeding up operations by a direct and continuous contact between locomotives and trainmasters and yardmasters and a saving in locomotive hours.

Increased efficiency of operations resulting from the use of radio is due to the constant contact with the locomotives. Without radio, the only contact while the locomotive is away from its terminal is through the yardmaster, who has to search for the locomotive or through industries which can be prevailed upon in emergencies, to call the engine foreman to the telephone. When radio is employed, the location of and the work being performed by the locomotive can be determined in a few seconds and the engine foreman directed to perform a pick-up at an industry or some other switching operation in the immediate territory. A few actual examples show the value of radio communication:

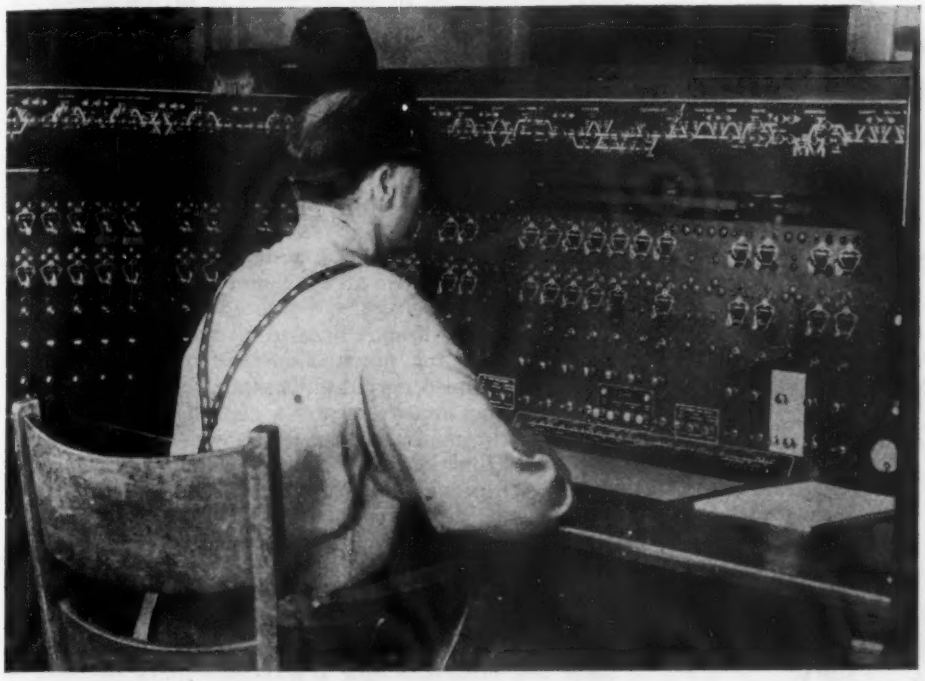
On one occasion, two shippers called to request switching service. The yardmaster knew that a radio-equipped locomotive should be in the Chicago & North Western's potato yard at the time and could perform the switching requested. A radio call disclosed that the crew had completed its work in this yard and was headed east. The yardmaster directed the crew to stop en route at an industry to pick up a car of perishables and then return west to do switching for another industry. On another occasion, a yardmaster upon learning that a switching movement would tie up the line leading from a foreign yard and cause one of his locomotives to be delayed, made arrangements to postpone the operation a few minutes until his crew could pick up some cars and leave the foreign yard.

Besides speeding up the movement of cars, the radio has served other purposes. On one occasion a car was derailed and fouled the tracks when dirt filled the flangeway at a street crossing. The engineman of a radio-equipped locomotive notified the yardmaster who immediately arranged for a derrick to re-rail the car.

When a Diesel failed while pulling a train out of the Union station to the coach yard, the general yardmaster at Western avenue was called immediately over the radio of one of the three locomotives which are radio equipped and he directed this locomotive to aid the disabled one. The radio call and the time consumed in coupling on to the disabled locomotive was less than the time that would have been required by the crew of the disabled one to reach a telephone and report.

Installation and operation of the radio is supervised by T. W. Wigton, supervisor of electronics, under direction of H. H. Hasselbacher, superintendent of telegraph.

Santa Fe Gets 115-Mile C. T. C.



The C. T. C. Control Machine at Oceanside

Train and helper movements are expedited on the busy single-track line between Los Angeles and San Diego

BETWEEN San Diego, Cal., and Bandini, which is a suburb of Los Angeles, the Atchison, Topeka & Santa Fe has installed centralized traffic control on 99 miles of single track and 17 miles of double track. The new signaling facilities have been an important factor in expediting train movements and relieving congestion resulting from heavy traffic on a single-track line previously operated by timetable and train orders.

Between San Bernardino and Los Angeles, 59 miles, the Santa Fe has two main lines. The one via Pasadena handles the through passenger trains, while the one via Bandini and Fullerton handles the freight traffic; in addition the passenger trains to and from San Diego use the portion between Fullerton and Los Angeles. As a part of the general improvement program during the past few years, second main track was constructed from Los Angeles eastward for 9.8 miles to Bandini, and from Fullerton westward 12.9 miles to DT Junction. Second track was not constructed between DT Junction and Bandini because steel was not available to build bridges for the additional track over the Hondo and the San Gabriel rivers. Between Fullerton and San Diego, 102.5 miles, the main line is single track, except for three short sections of double track totaling 5.4 miles.

Sudden Increase in Traffic

Previous to 1941 the traffic between Los Angeles and San Diego was comparatively light, the passenger as well as freight traffic being handled by trains which were operated mostly as locals. Starting early in 1941 the traffic increased so rapidly that the facilities could not be changed fast enough to prevent congestion. Whereas most of the local freight had previously consisted of outgoing fresh fruits, there was a sudden large increase of local freight to and from various training camps and ports. The freight traffic handled on this district increased from 315,554 ton-miles during the first three months of 1940, to 636,111 ton-miles in the same period of 1941, and to 864,112 ton-miles for the same period of 1942.

In order to handle the increasing war-time through passenger traffic between Los Angeles and San Diego light-weight streamlined cars and Diesel-electric locomotives were added to an existing service so as to permit operation of four trains in each direction daily. These trains make only one scheduled stop, at Oceanside, with a flag stop at Santa Ana, and make the 138-mile run between Los Angeles and San Diego in about 2 hr. 43 min. In addition, conventional coaches and steam locomotives are used for a local train in each direction daily. Extra passenger trains are operated as required, as many as 10 to 12 such trains being required on some days. One scheduled through freight train is operated overnight in each direction daily. Extra through freights are operated as required, and on a recent day there were 9 extra eastbound freight trains and 12 westbound. On the same day there were 5 light helper engine movements between Linda Vista and Sorrento, and 5 such movements between Linda Vista and Elvira. Local freight trains are scheduled each way daily except Sunday. Counting all trains, as well as light engines, the total number of train movements increased from 16 daily in 1941, to 25 daily in 1942; and to 42 daily in 1943.

The increases in traffic resulted in so many additional train movements that the timetable and train order method of authorizing train movements was entirely inadequate. In numerous instances, when track was available, trains would have to wait in yards or on sidings for hours, simply because the dispatcher could not issue orders fast enough to keep up with the rapid changes in train operating conditions. Local trains, which had finished their switching at certain towns, were frequently required to wait an hour or more before receiving orders to enter the main track and proceed. Helper locomotives, used to assist tonnage trains up the grades between Selwyn and Sorrento, lost much time when waiting for orders to return light to the bottom of the grades.

The construction of second track would have required large quantities of scarce materials, and no men were

Map Showing Centralized Traffic Control Territory

available for such programs. A further consideration is that the additional track might not be justified after the war. For these reasons, a decision to make certain track changes and additions was made, as well as to install centralized traffic control, including power-operated switches and signals for authorizing train movements, thus dispensing with the delays which were inherent in the timetable and train order system, and reducing the delays occasioned by the use of hand-throw switches at passing tracks.

Character of the Line

Between Fullerton and San Juan Capistrano, the railroad passes through rolling country. Between Serra and Sorrento, about 49 miles, the railroad runs close to the Pacific coast, the grade being nearly level except at places where the line ascends from the beach to a higher bench or returns to the beach. Between Sorrento and Pacific Beach the railroad passes over a ridge. From Sorrento to Linda Vista the grade is 2 per cent, plus or minus up to 2.2 per cent maximum for 3 miles, and then descends at about the same grade for 4 miles to Elvira. Furthermore, the curvature is excessive, with numerous curves ranging up to 8 degrees and five curves more than 10 degrees. Because of the grades and curvature, helper locomotives are required on all tonnage trains southbound from Sorrento to Linda Vista, and northbound from Pacific Beach to Linda Vista. Between Elvira and San Diego the grades are rolling, with a maximum of about 0.8 per cent.

Previously some of the passing tracks held about 48 cars, and, therefore, in order to handle longer trains, nine of the principal sidings were lengthened, the names of the towns, the old car capacity and the new capacity being as follows: Venta, 52 to 87; Irvine, 47 to 112; El Toro, 51 to 82; San Juan Capistrano, 44 to 80; Serra, 72 to 92; San Onofre, 64 to 92; Agra, 49 to 90; Ponto, 46 to 102; and Eucinitas, 32 to 85. In order to increase the track capacity on the heavy grade a new second track was added to 4.2 miles between Linda Vista and Elvira. A new No. 20 turnout was installed at the Elvira end of this second track and a No. 14 turnout at Linda Vista. New No. 10 crossovers were installed, one at the west end of Linda Vista and one at Selwyn.

Electric Switch Machines Installed

Oceanside is an intermediate terminal, where all trains stop, and most of them take fuel and water. Local freight trains work out of Oceanside in each direction, as well as to and from the branch lines to Escondido and to Fallbrook. Under the previous method of operation congestion of trains occurred quite often. For these reasons, when making improvements, a second main track was extended through from the north end of Oceanside to Escondido Junction, about 2 miles, and a set of two crossovers were provided at a central location. A new passing track, with a capacity of 85 cars, was installed at Fallbrook Junction, and the junction switch for the branch line to Fallbrook, which formerly connected with the main line, was changed to connect with the passing track.

In the territory through Orange, Santa Ana and Venta, there are numerous side tracks and spurs for serving fruit packing houses. In the peak season for shipping oranges and other citrus fruit several switch engines and local freight trains are assigned to this territory. In order to carry on this switching without interfering with through train movements a second track was extended on one section about a mile long through Orange and on nearly four miles between Santa Ana and Venta. In these sections both main tracks are signaled for train movements in both directions, so that if one track is occupied by a local train or switching movement the through trains can be run around on the other track.

As a part of the C. T. C. project electric switch ma-

Power Switch and Signals at the North End of San Juan Capistrano

chines were installed at the ends of double track, at the crossovers between main tracks, at junctions, and at the ends of those sidings which are used regularly for the meeting and passing of trains. At the main-line switches which are not equipped with power machines the old hand-throw stands were replaced with Style-T21 stands which include a switch and lock movement, lock rods, and an electric lock which locks the hand-throw lever in the normal position.

Automatic block signaling, using color-light signals controlled on the single-track overlap principle, had been in service between Fullerton and San Diego since 1931. As a part of the new construction the signals were relocated where necessary, most of them being searchlight type although some existing Style-R color-light signals were reused at intermediate locations.

C. T. C. Control Machines

The signals are located at the right of the track governed. At one end of each siding the track was thrown over to 18-ft. centers in order to locate the station-leaving main-line signal at the right of the main track. These signals are on masts 18 ft. high and the searchlight signal is mounted on top the mast with the center of the lens in line with the center of the mast. Ladders, but no platforms, are provided. All these special features make it possible to conform with standard clearances with the tracks at 18-ft. centers. By thus reducing this distance a saving is made in the cutting or filling which may be required.

The project includes two C. T. C. control machines. One machine in an office at Fullerton controls the territory from Bandini through Fullerton and south as far as El Toro, and a second machine, in a new one-story fireproof concrete building at Oceanside, controls the territory between El Toro and San Diego. The illuminated track diagrams on these machines include a lamp to repeat the occupancy of: (1) Each OS switch detector section; (2) each passing track; (3) each section of main line opposite a passing track; and (4) each section of single-track main line between two passing tracks. The switch and signal levers, as well as the indication lamps above these levers, are of the conventional arrangements. Below the levers is a row of toggle-type switches which control the electric locks on the hand-throw main-line switches.

Saving in Train Time Effected

The improvement program, including the new sections of second track and longer sidings, as well as the centralized traffic, have accomplished very satisfactory results in saving train time and increasing the track capacity, so that trains can be kept moving without delay. On the average, the overall time of freight trains has been reduced about two hours or more, and in most instances the saving is from overtime. Of most importance is the fact that trains can now be moved out of Fullerton, San Diego, Oceanside and other places when they are ready to go, without losing time waiting for orders. Although the traffic has more than doubled since 1941 the trains are being moved promptly.

Considerable time has been saved for the local freight trains and helper locomotives. For example, a helper can now make at least two helping moves in eight hours, whereas previously one such move was all that could be made. Fewer locomotives and crews are, therefore, required for this service.

The track changes and centralized traffic control on this project were planned and constructed by the forces of the Atchison, Topeka & Santa Fe, the major items of the signaling equipment being furnished by the Union Switch & Signal Company.

Aluminum Sheathing

(*Continued from page 880*)

lb. per car set, as compared with 1,042 lb. for steel. Some of the Camel roller fixtures consist of high-strength aluminum-alloy coatings. The Open-Grip aluminum-alloy running boards, both longitudinal and lateral, were made by the Morton Manufacturing Company, the sheet thickness being stepped up from .104 in. to .125 in. in order to meet the A. A. R. deflection test requirements. In spite of increased thickness, the aluminum running boards weigh only 180 lb., as compared with 390 lb. for steel. Open-Grip brake steps, supplied by the same company, weigh 4 lb. per car set, as compared with 11 lb. for steel. Similarly, the Union Metal perforated floor protector plates, applied between the car doors, threshold plate and door-post protector plates, weigh 136 lb., 35 lb., and 7 lb. in aluminum as compared with 290 lb., 84 lb. and 20 lb., respectively in steel.

The outside sheathing of this car, is made of ⅛-in. aluminum-alloy sheets which weigh 1,267 lb., or practically the same as plywood used in the current series of plywood-sheathed cars. It is estimated that .10-in. steel sheathing would weigh 2,870 lb. The net saving in weight, using aluminum instead of equivalent parts in this car is, therefore, 4,057 lb., but in neither case is the actual car weight as low as it might be for equivalent strength owing to the fact that the steel side-frame structure was originally designed for the application of plywood sheathing which would not carry any calculable percentage of the load. The frame is therefore heavier than necessary with either aluminum or steel exterior sheathing.

Other specialties on the Great Northern 50-ton aluminum-sheathed box car include Universal hand brakes, Universal slack adjuster, Miner A-5 passenger-type draft gears, Vapor steam trainline and signal connectors, Buckeye couplers, the Standard coupler centering device, Creco four-point brake-beam supports and Barber top-hung, two-roller side bearings.

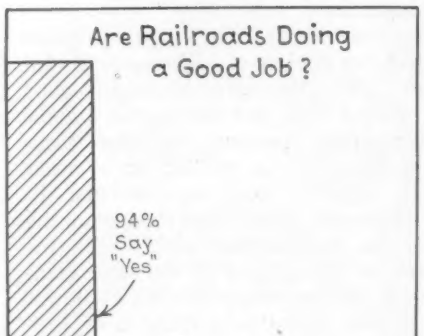
* * *

British Combine Photo

Severed Tracks Show Where a Bridge Formerly Had Spanned the Road at Rothe Erde, in Aachen. Now Occupied by the Allies, This City Had Been an R. A. F. Target Since 1940

Railroads Popular, Their Ills Ignored

Opinion survey shows public enthusiastic for carriers but almost wholly ignorant of threat from socialized rivalry

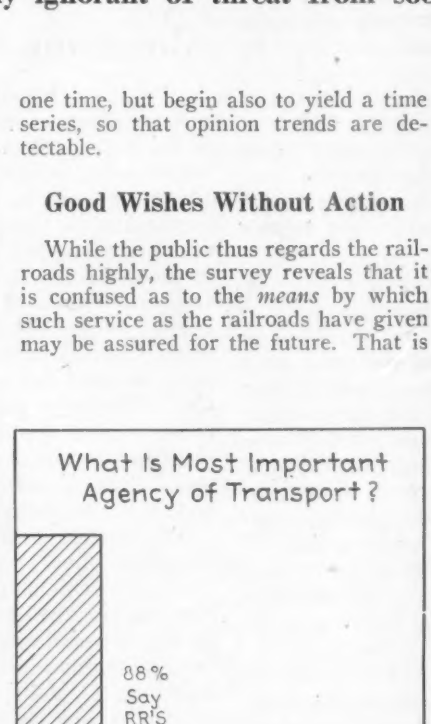


THE American people are practically unanimous (94 per cent) in their opinion that the railroads have done a good job during the war, and only 15 per cent favor the government's taking over the carriers for the duration (as compared to 50 per cent favoring wartime government operation prior to Pearl Harbor and 37 per cent last January when the railroads were, temporarily, under Army control). These disclosures are made in the fourth annual survey of public opinion regarding transportation, recently completed for the Association of American Railroads by the Opinion Research Corporation of Princeton, N. J.

Small question can arise as to the accuracy of the conclusions reached in the survey, since the methods employed are similar to those which have shown such extraordinary accuracy in predicting the outcome of the recent elections. Furthermore, since these surveys have now been made annually for four years, they reveal not only the state of opinion at one time, but begin also to yield a time series, so that opinion trends are detectable.

Good Wishes Without Action

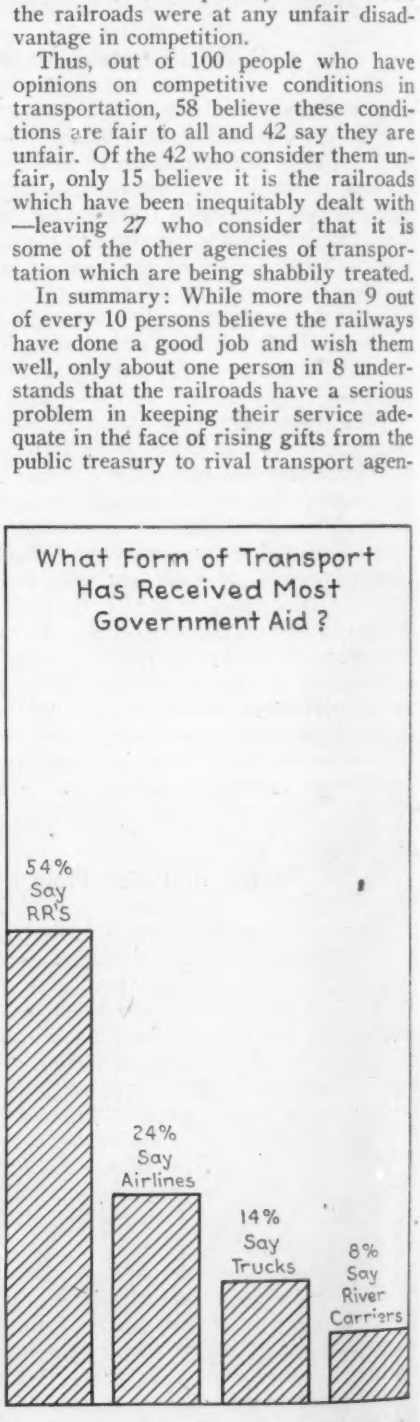
While the public thus regards the railroads highly, the survey reveals that it is confused as to the *means* by which such service as the railroads have given may be assured for the future. That is to say, the public shows little comprehension of the mounting difficulties the railways face in financing themselves in private capital markets—in the light of constantly increasing facilities being provided to other types of transportation out of the public treasury.



For example, 71 per cent of that part of the public having an opinion believes that conditions to assure fair competition between the various forms of transportation should be established—but 58 per cent of those with views on the subject said that such equitable conditions had already been established prior to the war. Of the minority (42 per cent) which did not believe that fair competitive conditions had already been placed in effect, only 36 per cent (i.e., 13 per cent of the total public) believed that the railroads were at any unfair disadvantage in competition.

Thus, out of 100 people who have opinions on competitive conditions in transportation, 58 believe these conditions are fair to all and 42 say they are unfair. Of the 42 who consider them unfair, only 15 believe it is the railroads which have been inequitably dealt with —leaving 27 who consider that it is some of the other agencies of transportation which are being shabbily treated.

In summary: While more than 9 out of every 10 persons believe the railways have done a good job and wish them well, only about one person in 8 understands that the railroads have a serious problem in keeping their service adequate in the face of rising gifts from the public treasury to rival transport agen-



cies; while one American out of every 16 actually believes the railways enjoy a political advantage over their rivals.

Who Gets Government Help?

Not only do the people in general not appreciate the handicap to railroad progress inherent in expanding publicly financed facilities for their rivals, but a majority (54 per cent) of them believes that the railroads have received more governmental aid than any other form of transportation. River and canal transportation—which actually receives proportionately the most aid, in that its users contribute nothing whatever to the cost of the facilities they use—ranks lowest of all forms of transportation in the public's estimate of how various transportation agencies have shared in governmental favors.

Of those with opinions concerning governmental aids to transportation, 44 per cent said that trucks and buses have had the least assistance from the public treasury, and 27 per cent said that river and canal transportation has had the least—with only 17 per cent according low place to the railroads and 12 per cent to the air lines. On this question, however, 47 per cent of the public expressed no opinion. Thus, about half of the public doesn't know an answer; and only 17 per cent of those with answers have the correct one.

The preponderant public, moreover, doesn't object to such governmental aids as have been granted (or are supposed to have been granted) to transportation and a majority approves specific assistance to agencies of transportation other than the railroads. A far smaller percentage approves similar governmental expenditures in behalf of the railroads—the difference being in that they believe expenditures for agencies of transportation other than the railroads are of wider use to the public as a whole.

From such revelations it is concluded that the railroads face four major problems arising from inadequate and inaccurate public information on governmental aids to transportation: (1) A high percentage of the people have no knowledge at all of governmental favors to transportation; (2) the predominant opinion seems to be that the railroads have benefited from such favors more than their rivals; (3) past favors of this kind are not criticized; (4) present and future favors are not objected to, especially if the recipients are to be some form of transportation other than the railroads.

Only 52 per cent of the people have heard of land grants to the railroads, and of this number more than a third don't know whether the railroads have repaid the government for this assistance, while almost a quarter of those who know about the land grants say the railroads have not repaid the government for them. Only 10 per cent of those who believe that repayment has occurred know how this repayment has been made (i.e., in reduced rates on government traffic).

Despite their hazy and inaccurate opinion on the economic conditions of competitive transportation, the American people are deeply and increasingly impressed with the importance of the railroads to the war effort. In 1941 the ratio of those who placed the railroads at the top of the list in this respect was 68 per cent; in 1944 this ratio stands at 88 per cent. There is widespread appreciation of the railroads' performance and little actual censure of the railroads—in the face of an increasing awareness of crowded and unsatisfactory service.

Those having heard complaints of railroad service now number 67 per cent of the total (as compared to 64 per cent in 1943 and 30 per cent in 1942)—but war-time conditions are largely blamed for this situation, only 1 per cent of the public blaming railroad management.

What They Criticize

One out of every 10 persons is critical of the attention received from railroad employees—and, of those who have traveled recently, about one-fourth report bad conditions in wash-rooms, while less than one person in three reports such conditions as good. About 35 per cent of the people believe the railroads are less safe than before the war (as compared to only 20 per cent who held this view in 1942). A small (11 per cent) but growing proportion of the population believes the railroads are making "too much profit" from war-time operation—but this comparative lack of criticism may arise from a fair degree of recognition (by 41 per cent) that railroad operations were not profitable before the war.

Almost three-fifths (58 per cent) of the people say that they would prefer rail to air travel, even at equal rates—but this preference for rail travel is declining; it was 64 per cent in 1943. Almost half of the public expects the railroads will carry the bulk of the passenger traffic after the war—but about one-fourth make this prediction in favor of air transport, while another one-fourth votes for buses as the most likely post-war travel leader.

At equal fares, 86 per cent would prefer rail to bus travel—but, the survey reminds its readers, the 1941 questioning revealed that the public was inadequately aware of the relative lowness of railway fares. What the passengers want most from the railroads in passenger service is "modern equipment," with greater speed and comfort. Speed is the principal reason (83 per cent) given by those who prefer air travel, and the safety factor is the leading argument (53 per cent) of those who prefer trains to planes.

What's Ahead for the Railroads?

Technologically their future is bright, but how can they prosper as private business, with unpredictable billions going into competing facilities which pay no taxes, nor returns to owners?

By ROBERT S. HENRY

Assistant to President, A. A. R.

WHAT's ahead for the railroads?

If the answer to that question could be confined to the physical railroad itself—the road of rails, the trains of cars which run upon it, the locomotive power which pulls them—it would not be difficult to make.

Railroad evolution will continue. The tremendous technological progress of the past points the way to the accelerated advances of the future toward a still more dependable and efficient performance of that mass transportation of goods and persons in long trains of cars pulled by a unit of locomotive power upon steel rails which is, and will continue to be, the cornerstone and foundation of commerce and industry on this continent.

The railroads are handling a more than doubled load with virtually the same number of locomotives and passenger cars they had in 1939, and with hardly more than a nominal increase in the number of freight cars. As compared with 1918, they are doing twice the job with almost one-third fewer locomotives, one-fourth fewer cars and 500,000 fewer men.

These facts are mentioned because of their direct bearing upon the future of the railroads. They point the way of progress for the future, along the same lines which in the past 25 years have doubled the output of transportation per car per day, more than doubled the output of service of the average freight train per hour, and increased the transportation output for each dollar invested in railroad plant and equipment by more than one-third. They constitute the record which shows what railroad trains on tracks mean to this nation and what they can do when the work is there for them.

But they do not answer the whole question as to the outlook for the rail-

This article is an abstract of an address made to the Commerce & Industry Association of New York on December 5.

roads, for, in addition to their physical operations, railroads in America—unlike those in most other countries—are a *business*, the product of business enterprise, run on business principles, subject to the same hazards as other self-supporting taxpaying business, and, in addition, subject to peculiar and special difficulties of their own.

Railroading is a volume business. Given sufficient volume of traffic, it can overcome most difficulties and surmount most obstacles. That has been the history of the business—to meet rising costs, mounting wages and multiplying taxes by spreading these costs thinner and thinner over a larger volume of traffic, with the increased efficiencies which such a volume of traffic makes possible.

Who Will Invest?

Right there, however, is a critical point. Technological improvements, no matter how meritorious, can accomplish little unless somewhere there is someone willing to invest his dollars in installing the improvements which the inventors devise. And that hard-headed fellow with the dollars is willing to spend them in that way only when and wnere he sees a reasonable chance of getting his money back and of earning a profit.

While earning—or at least trying to earn—a profit for himself, his investment in productive tools contributes even more to all others concerned. A prime reason why railroads in this war are able to do twice the job of the first World War, and do it so much better, is that while the railroad worker of 1918 had at his disposal, on the average, $10,000 worth of "tools," his successor in 1943 was working with $20,000 worth. As a result, not only did the work get done better, but the men who did it received wages which averaged nearly twice as much in cents per hour, the public received the truly incalculable advantage of adequate and dependable transportation, and the government, instead of having to pay out nearly $2,000,000 a day on account of deficits in running the railroads, received from them more than $4,000,000 a day in taxes.

Such contrasts give an idea of what investment can be made to mean in the way of improving transportation and cutting its actual cost—a beneficent process which is by no means at its end on the railroads, if the conditions under which the business is to be carried on in the future are such as to warrant continued investment in improving this fundamental transportation of the nation.

For that, two things will be required —a sufficient total volume of production and traffic in the nation, and a fair and equal chance for the railroads to carry that part of the total traffic for which they are economically best fitted on the basis of true costs and service.

To bring about such a result would require no more than the adoption of a governmental policy of treating all forms of transportation alike, not merely in matters of regulation, important as they are, but in the even more important matters of investment, government support and taxation.

As it is, transportation is carried on under a confusion of contradictory policies—at one extreme, such as the railroads, as a business enterprise which provides its own plant, both fixed and movable, meets its own costs, pays its own way and helps through its taxes to support essential government services such as education and the administration of justice; on the other hand, as in the case of the Inland Waterways Corporation, as a governmental activity which is neither self-supporting nor taxpaying. And all in between these extremes, there are mixtures of the two contradictory principles of independent business enterprise and dependent governmental activity, such as privately operated boats or planes using waterways or airways provided and maintained at public expense, with little or no payment therefor from users.

Under such a state of confusion in thinking and policy, there is small possibility that the country will get what it should have—the best and cheapest service which can be provided for each of its transportation needs. The very effort to create "cheap transportation" no matter how much it costs—so long as it costs someone else—has multiplied transportation agencies, divided the total traffic movement, subtracted from true efficiency and added to the total transportation costs of the nation.

Why No Tolls?

The government, national or state, now builds a river channel or a canal, for example, and makes a free gift of its use to those in position to take advantage of it, with no effort whatsoever to recover from the users any portion of the taxpayers' money spent for their benefit. Such expenditures are not investments. They are gifts at the expense of all for the benefit of some.

When such forms of transport were truly useful, the users were quite willing to pay for the privilege, as is demonstrated by the history of the canal connecting the Hudson and the Lakes. For more than fifty years, those who used it paid tolls for the privilege. The time came, however, when it was no longer truly useful and when, had it been a private enterprise, it would have been abandoned. Being a governmental activity, however, and thereby relieved of the business necessity of paying its way, the facility was kept in use, while tolls were taken off, and vastly more money was spent on it then ever before —to create a form of transportation so fantastically costly, all elements considered, that it simply could not exist but for the bounty of the taxpayers.

That well illustrates the difference between business enterprise and governmental activity in the ancient form of transportation by water. The same sort of difference is exhibited in the very newest form, by air. Something like nine-tenths of all the expenditures that have been made in furtherance of commercial aviation in this country have been taxpayers' money. There is in the City of New York one airport alone, LaGuardia Field, on which there has been spent more money than the total cost of all the transport airplanes in regularly scheduled commercial service —and another and still more expensive airport is being built.

These airports, primarily and almost exclusively for the use of commercial air transport, are on something of the same order of cost as a major railroad terminal. The difference is that the owners, and ultimately the users of the service, pay all the costs of the railroad terminal—both the investment cost of its construction and the cost of maintaining and operating it—and then pay taxes on it, besides, for the support of governmental activities. By contrast, the users of airports and airways, provided by public investment, maintained and operated by public funds, make almost negligible contributions toward bearing the costs incurred on their behalf.

Vanguard of Capitalism

This contradiction in governmental policy is fundamental in any consideration of what's ahead for the railroads. The railroad business is entirely capable of successful operation where there is a sufficient volume to keep the plant busy. The railroads can succeed and meet their obligations as self-supporting, taxpaying business enterprises if government policies of the future are such that they, along with every other form of transport, shall have an equal chance to haul that traffic for which they are inherently best suited.

So it is that there are two distinct parts to the answer to the question, "What's ahead for the railroads?" So far as the railroad, the physical thing itself, is concerned, there will continue to be railroads in this country because only on the unique surface of tracks is it possible to perform at low cost the all-year, all-season, all-around transportation service which American industry and commerce require.

But as to the business side of railroading, that is, their place in the enterprise way of doing business, it is not possible to be so sure. As the events of the past five years have again proved, the railroads are enterprising, progressive, competent—but it may be that even these qualities, plus the efficiency inherent in the rail method of moving persons and things in trains of cars on tracks, will not be sufficient to secure success for a business which must live on a self-supporting basis. Truly, the railroads stand on the very frontier of the enterprise system, in that debatable land between business enterprise and governmental activity where the real uncertainties of the future lie.

Railroads-in-War News

Berge-Biddle Suit Excoriated by Hays

Western railways' counsel says its success would bring on ruin and chaos

Post-war stability of the western states is threatened by the Justice Department's anti-trust suit against the western railroads, Joseph W. Hays, counsel for the Western Association of Railway Executives, told the Commonwealth Club of San Francisco, Cal., on December 1. Mr. Hays described it as "one of the most important cases of modern times because of the destruction, ruin and utter chaos which would follow in its wake, if it succeeds."

The present methods of initiating rates have been carried on for more than 40 years with the co-operation of shippers, the knowledge and approval of the Interstate Commerce Commission, and the knowledge of the Department of Justice and other branches of government, he asserted.

Present Practices Long Favored—"Until the present Department of Justice did so, no one has ever objected to or challenged the validity or fairness of the methods employed," Mr. Hays said. "On the contrary, shippers have uniformly come to our support in the defense of these very practices and procedures."

He described transportation by railroad "the most completely regulated business in America," and explained that by acts of Congress the railroad rates must be filed, published and observed, and the Interstate Commerce Commission has power to suspend and investigate any rate, either on its own motion or upon complaint, to fix rates, and to award reparation to shippers if rates are found unreasonable. Governmental regulatory authorities also have jurisdiction over railroad consolidations and reorganizations, construction or abandonment of lines, working conditions and wage agreements.

"Since 1938 the anti-trust division of the Department of Justice has multiplied by five its personnel and expenditures, and in this suit against the railroads seems to be campaigning for more power by usurping the powers of the Interstate Commerce Commission," Mr. Hays said.

The policy of the I. C. C. has been to encourage and at the same time to regulate co-operation between railroads to eliminate wasteful and destructive competition and to afford equality of opportunity to shippers and carriers alike, he asserted.

No Railroading Without Consultation—"To operate these western lines as a single, integrated system, our schedules must be synchronized with clock-like precision to afford a one-line quality of service over all these combinations of routings. To achieve this desirable end the western lines have, and must continue, to consult and co-operate both with each other and with their shippers. Yet this very structure of synchronized schedules is assailed by the Department of Justice as monopolistic and our co-operative action is challenged as unlawful conspiracy," the attorney for the railroads declared.

"These issues graphically illustrate the blind futility of subjecting the transportation industry to both the anti-trust laws and the Interstate Commerce Act, one of which exalts the savage force of unrestrained competition, and the other of which would place it in harness and make it work for the public good."

J. A. Appleton Gets a Star

On December 6 the Senate confirmed the promotion of Colonel John A. Appleton to the rank of brigadier general. Formerly general manager of the Pennsylvania's New York zone, General Appleton directed the institution of Military Railway Service operations on the Bengal & Assam line in India, and after D-day was transferred to the European theatre, where he was attached to supreme headquarters, American Expeditionary Forces. His photograph appeared in *Railway Age* of April 15, page 739.

Special Holiday Trains

General Permit ODT 24-11, issued by the Office of Defense Transportation on December 1, authorizes the railroads to operate special trains or extra sections between that date and January 15, 1945, "when necessary to meet demands for carrying members of the armed services." Similar arrangements were in effect for the 1943 and 1942 Christmas seasons.

British Railwaymen Have Own Prisoner-of-War Fund

British railways and the London Transport Board have what they call a "Comforts Fund" for British railroaders who are being held prisoners-of-war, according to T. D. Slattery, general traffic manager of the British Railways in New York. This fund, he said, is supported by railway employees, voluntary deductions being made from their salaries. Central distribution offices, under management control, handle all collections. It is estimated about 46 tons a year are being sent to the more than 2,500 railwaymen in enemy prison camps.

Finds Western Roads Ready for More Work

Commerce Department report declares they still have reserve capacity

Augmented freight and passenger traffic demands on western railroads following the close of the European war will be absorbed "without a critical period of stress or strain, unless the additional traffic materially exceeds that which is now anticipated," according to the latest issue of "Domestic Transportation," a monthly industry report prepared by the Transportation Unit of the Department of Commerce's Bureau of Foreign and Domestic Commerce. The bulk of the report is devoted to the survey of western railroad conditions, although there is comment also on motor and air carriers and petroleum transportation in that area.

Reserve Capacity Gaged—The statement that the western roads should be able to satisfy any foreseeable demands is rooted in the belief that they have the reserve capacity to take on the additional load. The report points out that the carriers have added to their supply of rolling stock and increased way and terminal facilities at a number of points. The man-power supply is expected to be "the chief factor limiting the railroads' capacity," but the report finds "no conclusive evidence" that it will constitute "a barrier to the satisfactory performance of the transportation job for the remainder of the war period, provided that every possible effort is exerted by transportation workers to move the increasing volume of traffic."

In its undertaking to measure the "reserve capacity" of the western roads, the report set up a table showing the maximum net ton-miles produced in any month since 1937 in the various western regions. This maximum performance was compared with the August, 1944, performance, indicating that for the Western district as a whole the August, 1944, performance was 94.7 per cent of the maximum. The range was from 92.1 per cent for the Northwestern region to 97.1 per cent for the Central Western region.

"It can therefore be said," the report continued, "that in August of this year railroads in the Central West were operating within three per cent of their *known* maximum capacity, while a margin of nearly eight per cent was available in the other two regions. But it does not follow that these percentages measure reserve capacity, for there is no method of determining a limit to the possible expansion on a given railroad. The record of the past year has

shown clearly that when additional traffic is offered, it can usually be taken up by available reserve capacity, even when the traffic assumes record proportions."

Efficient Operation—The report then went on to discuss the factor of operating efficiency, pointing out that the western roads "are operating with continually increased efficiency," which has been "of the utmost importance in handling the record traffic thrust upon them." In closing the report calls the Office of Defense Transportation diversion plan "unquestionably the most important single factor in maintaining an uninterrupted traffic flow to the West Coast."

From February, 1943, through October, 1944, it adds, 207,566 cars were thus diverted away from congested routes.

Motor and air carriers, as the report put it, "will continue to perform an important share of the transportation service in the western area, and the demands imposed upon these agencies will unquestionably call for the most effective utilization of all available facilities." The section on petroleum transportation discusses figures showing the continuing transfer of railroad tank cars from the East-coast service to the West.

Pipe Lines Now Carrying Bulk of East's Oil

Reporting on increased military demands for petroleum which threaten to create a "severe strain on civilian supplies on the Atlantic seaboard," the Petroleum Administration for War revealed in its November 30 bulletin how tank-car shipments to that area have decreased. At the same time every available tank car on American railroads is now in use somewhere, as Director Johnson of the Office of Defense Transporation reported in a recent statement, noted in the *Railway Age* of December 2, page 854.

During the week ended November 18, the tank-car shipments to the East averaged 107,136 barrels daily, whereas they were running to 781,000 barrels a day last May.

Meanwhile, the "Big Inch" pipe line delivered 309,365 barrels a day during week ended November 17, while "Little Big Inch" delivered a daily average of 215,503 barrels. The threat of strain on the civilian supply was pointed up in the bulletin by a statement from Petroleum Administrator Ickes who said that military demands in the East coast states are now approximately 500,000 barrels higher than a year ago.

Deputy Administrator Davies followed through to give assurances that P. A. W. is utilizing "all available tank car and barge transportation facilities," and "all available pipeline capacity." Also, it has "increased barge movements on the Mississippi and Ohio rivers for transshipment from Cincinnati so as to shorten tank car hauls and thus reduce turnaround time." Mr. Davies anticipated that the "emergency situation" will continue throughout the 1944-1945 heating season.

I. C. C. Service Orders

Interstate Commerce Commission Service Order No. 255, dealing with handling overloaded freight cars, has been set aside by No. 255-A in advance of its effective date, which was to have been December 7. The cancellation order was effective November 30, and it was followed by Amendment No. 6 to Service Order No. 68, with a December 15 effective date, making substantially the same provisions for the determination of freight charges in cases where part of the lading is transferred from overloaded cars as were incorporated in No. 255.

Under this amended order, charges must be assessed on the original car on the basis of the actual weight of the shipment after the excess has been transferred, subject to tariff minimum weights, but on the car containing the excess charges are to be based on actual weight subject, in general, to 50 per cent of the established tariff minimum. This order is silent with respect to the assessment of demurrage charges in cases where overloaded cars are left with or turned back to the shipper for disposition of the excess, that having been one of the provisions of the canceled order.

In addition to setting aside Service Order No. 242 on December 1, as noted in *Railway Age* of December 2, page 864, and so terminating the collection of super-demurrage charges on box cars, No. 246 also was vacated as of the same date, making the same action effective on the State Belt of California.

Through a supplement to Service Order No. 189, to be effective January 12, 1945, that order's limitation on certain out-of-line hauls in connection with transit arrangements on grain, feed, seeds, etc., has been further extended to embargo other out-of-line hauls in connection with transit points in Kansas, Iowa and Missouri.

Materials & Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since November 23, and which are of interest to railways:

Cars and Locomotives—Railroad equipment builders who are in a position to produce locomotives and railroad cars in advance of their production schedules may do so, upon notification to the W. P. B. according to Orders L-97 and L-97a. The manufacturer may proceed with such advance production provided it does not interfere with other production or delivery schedules or if he is not otherwise directed, in writing, by W. P. B. Sequence of production established in schedules must be maintained.

Electronic Equipment—Certain non-critical electronic equipment, parts and components are now available for domestic purchase and export out of idle and excess stocks of war contractors. Prior to its recent amendment PR-13 restricted the movement of practically all electronic equipment. Recently W. P. B. found that a number of components including certain capacitors, and a number of types of resistors, crystal assemblies, insulators, microphones, sockets and loud speakers were no longer critical. Radio tubes, which are more critical than ever, are not included in the relaxation of the order and will require ratings as high as AA-1 in some cases.

The action of W. P. B. now permits free sale and movement of many non-critical materials out of war contractors' surplus. The exceptions which now appear on PR-13 are still restricted and require a priority rating of AA-5 or better.

Portable Lamps—Portable lamp manufacturers, who may make lamps for preferred orders only under Limitation Order L-33 and for civilians as authorized under PR-25, may now use iron and steel for any lamp part, as provided in the amendment of L-33.

Portland Cement—Restrictions on Portland cement, which formerly limited manufacturers to three specified types, have been removed by the revocation of Order L-179.

Sealing Tape Machines—An increase in the manufacture of gummed paper sealing tape machines has been permitted by an amendment to General Conservation Order M-126. Permission to purchase the machines has been granted heretofore on AA-3 or higher priorities. However, increasing demands have made it necessary to allow unrestricted manufacture insofar as manpower and material restrictions will permit. Controls will continue to be enforced over manufacturers' and distributors' inventories.

Prices

Building Tile—Manufacturers of hollow building tile in eight southern states (Virginia, North and South Carolina, Tennessee, Georgia, Florida, Alabama and Mississippi) where maximum prices were previously increased by 59 cents a ton may add an extra cent and use the figure of 60 cents in computing ceiling prices, according to Amendment 63 to Order No. A-1 under PR-188, effective November 28. Because of the method of quoting prices for hollow building tile in this area, the industry has represented to O. P. A. that the full amount of the adjustment previously granted could not be realized.

Die Castings—Sellers who regularly price new die castings below their permissible maximum prices may apply to O. P. A. for permission to increase prices on subsequent sales to the calculated maximum prices, according to Amendment No. 4 to MPR-377, effective December 7. This is intended primarily to eliminate any inequity which might result to such sellers because they have consistently sold new castings at a lower price than would have been permitted by the regulation governing prices of the commodity. MPR-377 freezes the price of all die castings at the level at which they were sold or delivered during the period April 1, 1942, through April 30, 1943. In the case of castings which were not sold or delivered during the base period, the seller shall figure his maximum price by the pricing formula which he used on February 1, 1943. The formal price is subject to the seller's usual discounts and allowances, and a reduction of 3 per cent. The regulation further provides that the price charged for the first sale of a new die casting becomes the maximum price for all subsequent sales. As a result, a seller who makes his first sales of a new die casting at a price below the maximum allowed under the regulation is not able to increase his price even though the first price is less than he might have charged.

Plumbing Fixtures—Seven representatives of producers of formed metal plumbing fixtures have been appointed to an industry advisory committee to consult with O. P. A. and make recommendations concerning manufacturers' problems of pricing, delivery terms, and trade discounts on sales of the products, with a meeting scheduled in Washington on December 8.

Saran Plastic Nipples—Specific ceiling prices have been set for all manufacturers' sales of Saran plastic pipe nipples by Amendment 64 to Order 1A of MPR-188, effective December 2. The prices range from 58 cents for a 3-in. nipple to fit a ½-in pipe, to $2.94 for a 12-in. nipple to fit a 2-in. pipe. This action designates the same discounts and freight allowances set forth in provisions governing prices of Saran pipe, tubing, and pipe fittings, to apply in establishing resellers' ceilings for Saran nipples. Maximum prices at all levels of distribution for the pipe, tubing, and fittings, were issued on August 3, 1943.

GENERAL NEWS

10 Mos. Net Income Was $562,000,000

Net railway operating income for same period was $945,315,434

Class I railroads in October had an estimated net income, after interest and rentals, of $59,900,000 compared with $76,026,558 in October, 1943, according to the Bureau of Railway Economics of the Association of American Railroads. In the first ten months of 1944, they had estimated net income of $562,000,000 compared with $775,529,505 in the corresponding period of 1943.

October's net railway operating income, before interest and rentals, was $97,346,467 compared with $113,311,205 in October, 1943, marking the 17th consecutive month in which the net earnings of the carriers showed a decline. The ten months net railway operating income was $945,315,434 compared with $1,195,867,342 in the same period of 1943.

In the 12 months ended October 31, the rate of return averaged 4.04 per cent compared with 5.63 per cent for the 12 months ended October 31, 1943.

Gross Still Up.—Operating revenues for October totaled $818,737,486 compared with $796,213,930 in October, 1943, while operating expenses totaled $539,156,806 compared with $513,539,940. The ten-months gross totaled $7,899,259,660 compared with $7,510,353,469 in the same period of 1943, or an increase of 5.18 per cent. Operating expenses in the ten months amounted to $5,201,744,308 compared with $4,555,791,465, an increase of 14.18 per cent.

Class I roads in the ten months paid $1,559,960,915 in taxes compared with $1,577,738,802 in the same period of 1943. For October alone, the tax bill amounted to $162,187,117 an increase of $10,816,961 or 7.1 per cent over October 1943. Twelve Class I roads failed to earn interest and rentals in the ten months, of which eight were in the Eastern district, one in the Southern region, and three in the Western district.

In the East and South.—Class I roads in the Eastern district in the ten months had an estimated net income of $241,000,000 compared with $320,217,218 in the same period of 1943. For October alone, their estimated net income was $23,200,000 compared with $25,017,978 in October, 1943.

The ten-months net railway operating income in the Eastern district was $401,605,195 compared with $493,679,700 in the same period of 1943. For October it was $39,110,814 compared with $41,308,869 in October, 1943.

Gross in the Eastern district in the ten months totaled $3,440,822,203, an increase of 3.68 per cent compared with the same period in 1943, while operating expenses totaled $2,400,486,179, an increase of 12.81 per cent.

Class I roads in the Southern region in the ten months had an estimated net income of $85,000,000 compared with $117,309,363 in the same period of 1943. For October alone, they had an estimated net income of $6,400,000 compared with $9,205,479 in October, 1943.

The Southern region's ten-months net railway operating income was $138,986,499 compared with $171,877,982 in the same period of 1943. Its October net railway operating income amounted to $12,128,100 compared with $14,855,619 in October, 1943.

Gross in the Southern region in the ten months totaled $1,113,243,490, an increase of 3.64 per cent compared with the same period of 1943, while operating expenses totaled $695,568,451 or an increase of 13.72 per cent.

In the West.—Class I roads in the Western district in the ten months had an estimated net income of $236,000,000 compared with $338,002,924 in the same period of 1943. For October alone, they had an estimated net income of $30,300,000 compared with $41,803,101 in October, 1943.

Those same roads in the ten months had a net railway operating income of $404,723,740 compared with $530,309,660 in the same period of 1943. Their October net railway operating income amounted to $46,107,553 compared with $57,146,717 in October, 1943.

Gross in the Western district in the ten months totaled $3,345,193,967, an increase of 7.31 per cent compared with the same period in 1943, while operating expenses totaled $2,105,689,678, an increase of 15.94 per cent.

CLASS I RAILROADS—UNITED STATES

	1944	1943
Month of October		
Total operating revenues	$818,737,486	$796,213,930
Total operating expenses	539,156,806	513,539,940
Operating ratio—per cent	65.85	64.50
Taxes	162,187,117	151,370,156
Net railway operating income (Earnings before charges)	97,346,467	113,311,205
Net income, after charges (estimated)	59,900,000	76,026,558
Ten Months Ended October 31, 1944		
Total operating revenues	$7,899,259,660	$7,510,353,469
Total operating expenses	5,201,744,308	4,555,791,465
Operating ratio—per cent	65.85	60.66
Taxes	1,559,960,915	1,577,738,802
Net railway operating income (Earnings before charges)	945,315,434	1,195,867,342
Net income, after charges (estimated)	562,000,000	775,529,505

A. A. R. Group Issues Three More Reports

They include central hiring, suggestion systems, and rest room facilities

Three more reports, covering centralized hiring, employee suggestion systems, and rest room facilities, have been issued by the Subcommittee on Labor and Personnel of the Railroad Committee for the Study of Transportation. The subcommittee, headed by L. W. Horning, vice-president of the New York Central, is one of 15 at work on the research program sponsored by the Association of American Railroads and operating under the direction of A. A. R. Vice-President R. V. Fletcher.

Where Plan Will Work—The report on centralized hiring stresses the advantages of such a plan, and points the way for railroads to attain such advantages without at the same time going in for an impracticable set-up. In other words it is recognized that the establishment of a single employment office would not be desirable on a railroad where persons of many varied skills are employed at many different points; but the railroads are nevertheless advised that "the advantages of centralized hiring at locations where employees are taken on in large numbers justify the establishment of an employment office at such points." Meanwhile, departmental officers elsewhere charged with the hiring responsibility "should follow uniform specifications and procedures prescribed by the management."

Other conclusions in the report note that many of the larger industrial concerns and some railroads are making use of a central employment office to facilitate the hiring of new employees. "The work of the employment office," the subcommittee continues, "is analytical and advisory and does not infringe on the ultimate responsibility for hiring which rests with the departmental official.

Hiring Done by Skilled Men—"The advantages of the employment office are time savings for the busy official; preliminary selection of applicant by full-time personnel employees especially trained for this purpose; increased efficiency of initial employment since all applicants are considered for vacancies in all departments; and an increase in public good will, since the prospective employee is assured of fair treatment and knows he will be considered for any position the company can offer by visiting the employment office."

Meanwhile the report had got underway with a finding that railroad executives

have for many years recognized the need for efficient methods of selecting employees. In that connection there is quoted an 1885 pronouncement of Charles E. Perkins, then president of the Chicago, Burlington & Quincy, who suggested the desirability of providing "certain machinery for the inspection and testing, so to speak, of the men who are to be employed; so that, when it becomes necessary for an officer or a foreman to employ a man he may have a certain number who have been inspected and tested to select from."

"Exit Interviews"—Remaining sections of the report discuss in turn the functioning of a central employment office; the interviewing of applicants; placement; and separation. The latter is a discussion of the "exit interview," which employment departments are often called upon to conduct at the time an employee is discharged, laid off or leaves the service of his own accord. "The value of the exit interview by the employment office in normal times," says the report, "is the opportunity in connection with resignations to determine reasons for quitting which reflect the general attitude of employees towards the company and conditions of work." In times of labor shortage, it reduces turnover by giving different assignments to employees desiring to quit, or otherwise persuading them to remain on the job.

The description of a central employment office's advantages in general is followed by a detailed consideration of its applicability to the railroad industry. There comes the discussion leading to the subcommittee's conclusion that the "geography of railroad employment" precludes the establishment of a single system office; and its recommendation that the centralized plan be limited to points where large numbers of employees are hired. It is suggested that the "most logical" place for a central employment office would be the point where the general offices are located, and that branch employment offices might also be established at the larger division headquarters.

Not a "Theorist's" Job—The subcommittee emphasizes its view that a central employment office "must have the wholehearted support of the executive officers of the company." And the man placed in charge "must be a diplomat, and preferably a railroad man of considerable experience, since there will undoubtedly be some line officers who will feel that their authority has been weakened and the employment of new help entrusted to a 'starry-eyed theorist who knows nothing about running a railroad.'" The employment manager "must convince such officers that his role is advisory and analytical and that the ultimate responsibility for hiring still rests with the department head." The subcommittee is confident that the line officers' appreciation of the worth of the new system will quickly be forthcoming if the initial screening of applicants saves the officers' time while offering them more capable personnel.

The report concludes with a section on railroad experience with centralized hiring. Of the 23 railroads supplying information for this section, seven are engaged in some form of centralized hiring in at least one place on their respective lines. An eastern railroad which inaugurated a central employment office at New York in 1942 reported "very favorable results to date," and its organization, procedure and experience are set forth in considerable detail.

A Welcome to New Employees

The personnel department of the New York Central is distributing among employees an attractively-printed and illustrated 4-page circular entitled "Bill, the New Railroader"—as the result of a suggestion from two yard conductors that this means be adopted of arousing old employees to extend a heartier welcome to newcomers.

The circular asks the employee if he wants to protect the lives and limbs of himself and his associates and help solve the railroad's manpower problem by making the newcomer an efficient railroader as quickly as possible. Assuming an affirmative anwer, the employee is asked to consider *who* "Bill" is (the son or relative of a fellow-railroader or an honorably discharged veteran, perhaps); and *what* "Bill" is (a man in the same position as the old-timer was 15 or 20 years ago when he started to railroad). Other matters of interest about "Bill" are brought to the reader's attention, the circular concluding with a list of things which the experienced railroader can do to help "Bill" out—for his sake, as well as that of the railroad and the experienced employee.

Suggestion System's Advantages—The report on employees' suggestion systems recommends "that railroads which do not have formally organized suggestion systems give careful consideration to the possible advantages of such plans." As a corollary to the institution of a suggestion system, it is recommended "that consideration be given to the establishment of a well defined plan whereby legal and financial aid is made available to railroad employees having patentable inventions or ideas."

It is the subcommittee's general conclusion that "well organized suggestion plans in railroad and industrial concerns, where attitudes of management and employees were favorable, have proved to be valuable instruments of employee relations as well as sources of worthy ideas which would otherwise probably have been overlooked."

The report tells how a suggestion system operates and indicates results which may be expected, it being emphasized that a system in and of itself "is not necessarily good, bad or indifferent"—the determining factor "is the way it is organized and administered." Experiences of various railroads are set forth in some detail, the subcommittee following through to suggest that several of the plans outlined "would succeed on other railroads."

Patents for Employees—On the "patentable ideas" matter, the report tells of a company which makes a standing offer of a minimum award of $250 with the understanding that the company will assist the employee financially and legally to obtain his patent. The company retains the right to use the invention on its own equipment, but if it is an item which can be put to commercial use, the employee is permitted to have it manufactured and marketed on the outside on a royalty basis or otherwise. It is some such plan that the subcommittee recommends "to stimulate and encourage inventive thought by railroad employees."

The report on rest room facilities is a brief statement of the subcommittee's belief that "all railroad officers will agree that unsanitary toilets, washrooms, and drinking water stations should not be tolerated," because "such breeders of dissatisfaction, grievance, and resentment will, in the long run, effectively preclude the employment of the type of willing and ambitious worker the railroads need and will continue to need if they are to maintain their position as America's foremost transportation medium."

Need for Clean Washrooms—Then come five recommendations, as follows: (1) That a survey be made of present facilities; (2) that toilet, washroom, and drinking water facilities, and their maintenance, be made the responsibility of some definite authority; (3) that such facilities be made available for use by employees at all times during working hours; (4) that, as may be appropriate, a sufficient force of employees be assigned the duty of keeping the facilities in sanitary and neat condition; (5) that frequent inspections be made of these accommodations to insure the maintenance of satisfactory standards.

An appendix to the report reproduces an article entitled "Living at Work," which appeared in the July 15, 1941, issue of "Modern Industry." Attention is directed to the article's finding that "experience has taught that adequate washrooms, locker rooms . . . —the devices that make factory life a bit more pleasant—are paying dividends in improved employee morale, increased efficiency, and lessened likelihood of labor troubles."

Including the foregoing, this Subcommittee on Labor and Personnel has issued a total of six reports. The three previous ones were the "Partial and Progress Report on Railroad Personnel Problems," which was reviewed in the *Railway Age* of November 27, 1943, page 871; the "Special Report on Public Relations Training for Railroad Employees," noted in the article entitled "Plans Well in Hand," which appeared in the issue of January 1, page 6; and "Reemployment of Ex-Service Men and Women," which was reviewed in the issue of October 7, page 552.

Reinstated Restrictions Apply to All Tank-Car Traffic

Reinstatement of the "less than 200 miles" provision, in General Order ODT 7 Revised, applies not only to petroleum and petroleum products, but to all commodities moving in tank cars, Fayette B. Dow, director of the Liquid Transport Division, Office of Defense Transportation, pointed out in a December 2 statement.

The petroleum and petroleum products phase of the reinstated restriction was noted in the *Railway Age* of December 2, page 855. Under the restriction as now in effect, all shippers and carriers of liquids

in tank cars must obtain permits for movements of 200 miles or less.

On December 5 came the announcement that Director Johnson of O. D. T. had written letters to heads of chemical companies and packing houses, calling attention to "the nation's critical shortage of tank cars," and urging the necessity of getting the most efficient use out of all such cars. The O. D. T. director called for cooperation on a plan of "working 24 hours a day, seven days a week in loading and unloading, of using tank trucks for short hauls, thereby releasing tank cars for long-distance work, and reporting all excess cars on hand so that they can be given to other companies which need the equipment."

October Truck Traffic

Motor carriers reporting to the American Trucking Association, Inc., transported in October 2,658,849 tons of freight, an increase of 4.8 per cent over the 2,547,251 tons reported for September (revised) and of 0.6 per cent over the October, 1943, figure of 2,651,940 tons. The A. T. A. index, based on the 1938-1940 average monthly tonnage of reporting carriers, was 190.74, as compared to 182.47 in September.

The foregoing figures, according to the A. T. A. announcement, are based on reports from 315 carriers in 45 states. Truckers in the Eastern district reported an increase of 5 per cent above September and of 0.6 per cent over October, 1943. In the Southern region there was a 1.8 per cent gain over September, but a decrease of 5.7 per cent from October, 1943. Increases were reported by the Western district, which was 5.6 per cent ahead of September and 3.9 per cent over October, 1943.

Traffic Club of Pittsburgh Cancels Annual Diner

The Traffic Club of Pittsburgh, at its bi-monthly meeting December 4, decided to cancel its annual dinner which was to have been held in January. This function yearly has attracted railway officers and industrial leaders from all parts of the country; and it was agreed that, because of the war, cancellation of the dinner was desirable at this time.

Railway Express Is "Sold" on Employee Training

The employee training program, which was adopted by the Railway Express Agency a year ago when experienced employees were being called into the service in increasing numbers, "has so speeded up the knowledge and efficiency of new and old employees alike," reports L. O. Head, president, that this organization has now adopted it as a permanent part of its operations.

With 21,000 of its employees, now in the armed services, there are today 5,000 company supervisors acting as instructors and leaders of local groups engaged in progressive courses of instruction. The company reports that 80,000 men and women in its employ are now attending classes. Under the direction of the public relations department, in New York, training bulletins are issued monthly, so that all employees may cover the same subjects simultaneously, and classes are restricted to 25, to insure maximum participation.

Approve I. T. C. Installation on Harrisburg-Pittsburgh Line

By order of Chairman Patterson, the Interstate Commerce Commission has approved the Pennsylvania's application for authority to install an inductive train communication system on its main line from Harrisburg, Pa., to Pittsburgh, noted in *Railway Age* of September 30, page 524. Approval was made subject to subsequent modification of the commission's rules covering the installation and maintenance of such facilities, and with the provision that the installation shall be supplementary to and not supplant any existing signal or safety devices. It was further ordered that no material change be made in the present method of operation of trains, signals or interlockings in the territory involved without commission authority.

Finds No Need for "Firemen" on B. & G. Electrics

Reporting to President Roosevelt on a dispute between the Bingham & Garfield and its employees represented by the Brotherhood of Locomotive Firemen & Enginemen, an emergency board has found no need for the addition of a "fireman" to the crews of that road's trolley-electric locomotives, now manned by engineers only. The demand of the Brotherhood for the second engineman was the only issue in the dispute.

Members of the board, appointed by the President under section 10 of the Railway Labor Act, were: Chairman Richard F. Mitchell, former judge of the Iowa Supreme Court; Walter C. Clephane, Washington, D. C., attorney; and Dr. A. G. Crane, former president of the University of Wyoming. While Dr. Crane concurred in the board's statement of facts and in its final decision, he nevertheless appended a brief statement of his personal opinion that the addition of the "fireman" might be advisable "as a further factor of safety in what in my judgment appeared to be a highly hazardous operation."

In the latter connection, the majority pointed out that locomotives have been operated with one-man crews for 20 years; and with the possible exception of a collision occurring in October, there has been "no accident of a character which could have been avoided by the addition of a fireman."

Modernization Depends on Maintaining Present Earnings

Net earnings of railroads must remain "at least at present levels" if the carriers' credit is to be maintained at a level to support a modernization program of $10,000,000,000, in the decade following the end of the war, according to an analysis made by the Railroad Securities committee of the Investment Bankers Association of America and submitted at the organization's annual meeting at Chicago on November 28.

"It is impossible to prophesy the time required for a step-by-step restoration of railroad credit," the committee reported, "but if earnings continue at adequate levels and the political and economic climate remains favorable, there is a possibility that rapid progress may be made. One of the most important factors, if not the most important, is the governmental attitude toward the carriers."

"In regard to this," the report continued, "the outlook today is dark, although it must be recognized that in the decisions of the Interstate Commerce Commission authorizing the recent rate sur-charges and later ordering their suspension, we find opinions by practically all the commissioners giving a greater recognition to the need for adequate earnings than is to be found in any previous decision of the commission."

President Opposes Air Rights for Surface Carriers

President Roosevelt is understood to have written a letter to Chairman Bland of the House committee on merchant marine, expressing his views with respect to the operation of air transportation services by steamship lines. The letter has not been made public, but it is reported to have indicated the President's opposition to the riers. This would amount to endorsement of

This would amount to endorsement of the restrictive policy which the Civil Aeronautics Board has thus far followed in passing upon air-service applications of the surface carriers. The House merchant marine committee recently issued a report advocating legislation specifically authorizing air rights for steamship lines.

G. M. Barnard Takes Oath as I. C. C. Member

George M. Barnard took his oath of office as a member of the Interstate Commerce Commission on December 2. The oath was administered by I. C. C. Chairman Patterson. As noted in the *Railway Age* of December 2, page 857, where his confirmation by the Senate was reported, Mr. Barnard succeeds the late Joseph B. Eastman for a term expiring December 31, 1950.

Officers of A. S. M. E. Railroad Division for 1945

During the annual meeting of the American Society of Mechanical Engineers, held at the Hotel Pennsylvania, New York, a joint session of the Railroad Division and the Oil and Gas Power Division was held on November 29 at which the subject of discussion was the gas-turbine locomotives. Two sessions of the Railroad Division were held on November 30 on locomotive and car subjects, at which the chairman of the Railroad Division, John G. Adair, mechanical engineer, Bureau of Locomotive Inspection, Interstate Commerce Commission, Washington, D. C., presided. At the close of the afternoon session R. M. Gates, president of the society, presented a certificate of appreciation to Mr. Adair and complimented the Railroad Division on its achievements and opportunities for further service to the railroad and railway supply industries.

Officers of the Railroad Division for

1945, including those newly appointed, are as follows: Executive Committee—Chairman, W. M. Sheehan, assistant vice-president, General Steel Castings Corporation, Eddystone, Pa.; K. F. Nystrom, mechanical assistant to vice-president, Chicago, Milwaukee, St. Paul & Pacific, Milwaukee, Wis.; W. C. Sanders, general manager, Railroad Division, Timken Roller Bearing Company, Canton, Ohio; B. S. Cain, assistant engineer, Locomotive Division, General Electric Company, Erie, Pa.; secretary, E. L. Woodward, western mechanical editor, *Railway Age*. Mr. Sheehan will also serve as chairman of the General Committee on which L. B. Jones, engineer of tests, Pennsylvania, Altoona, Pa., was re-elected for another period of five years. Fred Huston, International Nickel Company, New York, was elected to fill the unexpired term of Mr. Cain who was advanced to the Executive Committee. Two additional new members of the General Committee elected for five-year terms included C. E. Pond, assistant to superintendent of motive power, Norfolk & Western, Roanoke, Va., and C. H. Beck, general sales manager, Westinghouse Air Brake Company, Wilmerding, Pa.

Rocky Mountain Rockets Complete 5 Years Service

The Rocky Mountain Rockets of the Chicago, Rock Island & Pacific completed five years of service between Chicago and Denver, Colo., and Colorado Springs on November 12. During this period, substitute service was required on only 30 of the 3,856 trips, an availability record of 99.18 per cent. More than 1,722,000 passengers have used the service.

I. C. C. Bureau Considering Motor Freight Study

The Interstate Commerce Commission's Bureau of Transport Economics and Statistics has been considering the launching of a nationwide survey of motor freight traffic covering data abstracted from freight bills of a selected groups of truckers in each region Tentative plans are understood to call for getting the survey under way in the Southern region.

When asked about the matter this week, Commissioner Splawn, to whom the Bureau reports, said that the commission had no announcement to make at this time.

Employees of Chicago Suburban Lines Make New Demands

New demands for increases in pay, ranging from 12½ to 16½ cents an hour, were made on December 2 by the Brotherhood of Railroad Trainmen and the Brotherhood of Locomotive Firemen and Enginemen on the Chicago, North Shore & Milwaukee and the Chicago, Aurora & Elgin. The new demands follow the acceptance of an increase of five cents an hour which was recommended by an emergency board and which motormen, conductors, collectors and brakemen accepted on November 26 following a 17-day strike. The unions are asking that the hourly rate of pay of motormen and conductors be raised from 97 cents to $1.13¼ and that of ticket collectors and freight brakemen, from 85 cents to 97¼ cents.

On December 5, the railroads refused to meet the demands and the unions asked for mediation.

Spanish Train with Low Cars Weighs 2,850 lb. Per Wheel

A streamline Diesel-powered train involving new principles of design has been developed in Spain where it is said to have maintained a speed of 80 m.p.h. on sharply curved lines in a mountainous region where a regular train could not exceed 31 miles an hour without being derailed. The speed of the train, which has made trial runs between Madrid and Aranjuez, Madrid and Zaragoza, and other points on the Spanish railways, is attained through a reduction in dead weight, in part by adapting airplane technique to the building of the carriages, with stressed skin structures and light alloys, and by adapting motor-car technique to the independently sprung wheels, suspensions, and braking systems.

The train is composed of short units, 12 to 14 ft. long, with a very low center of gravity and low overall height above the rails—7 to 8 ft. The car floor has a clearance of only 12 to 14 in. above the rails. The wheels have been made independent by eliminating the axle between each pair. Each car has two wheels at its rear end, each sprung independently from the car body frame. The front end is linked for traction to the next car body in the center by a universal joint, and, for vertical support, by two horizontal pins which fit into slots on either side of the car body ahead. The train, including passengers, is said to weigh 5,700 lb. per pair of wheels—less than 200 lb. per passenger.

The 80-mile speed was attained through the use of a Ganz Diesel motor-truck engine loaned by the Spanish railways, which reportedly did not develop sufficient power to give the best results. A 650-hp. unit is being imported which is expected to give a maximum speed of 105 miles an hour and a normal speed of 90 for a 240-passenger train on Spanish main lines.

The train was designed by Senor Alejandro Goicoechea, a lieutenant-colonel of engineers in the Spanish Army and formerly chief engineer of the Ferrocarriles de la Robia and technical advisor to the Board of Railway Rolling Stock.

Jersey Central Employees Find 299 New Workers

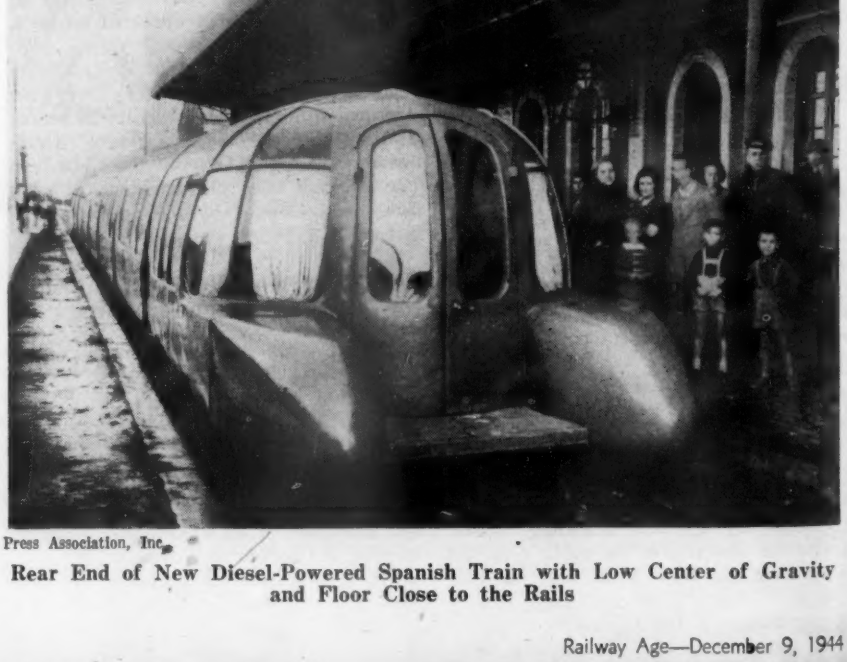
Since its offer some months ago to award $5 to each employee for recruiting another worker for the Jersey Central, the railroad has paid out $1,495 to 220 employees who have added 299 new names to the payroll. W. D. Peters, chief clerk in the police department at Allentown, Pa., recently won his second straight award, the railroad announces, for securing eight beginners who have completed at least 30 days' service with the company. He previously had brought in nine others.

According to the employee magazine, "The Coupler", awards up to $10 each have been paid 28 other employees, and, it is stated, the $5 offer continues in effect.

New Passenger and Freight Records Seen for 1944

In a year-end summary of the railroads' transportation record for the year 1944, Gustav Metzman, New York Central president, in his capacity of chairman of the Eastern Railroad Presidents' Conference, estimated that the passenger load will total 96 billion passenger-miles, or 8 billion more than in 1943 and four times that of 1940. Freight traffic he expects to reach 748 billion ton-miles, 18 billion more than in 1943 and double the traffic of 1940.

This "modern miracle of transportation," he said, has been made possible because



Press Association, Inc.

Rear End of New Diesel-Powered Spanish Train with Low Center of Gravity and Floor Close to the Rails

"the United States has the best railroads in the world," and when peace comes, he asserted, we may look for the railroads "to continue alert to new improvements which will assure progressively better transportation."

Freight Car Loading

Loadings of revenue freight for the week ended December 2 totaled 808,260 cars, the Association of American Railroads announced on December 7. This was an increase of 39,530 cars, or 5.1 per cent above the preceding week, a decrease of 54,473 cars, or 6.3 per cent below the corresponding week last year, and an increase of 48,529 cars, or 6.4 per cent above the comparable 1942 week.

Loading of revenue freight for the week ended November 25 totaled 768,730 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, November 25

Districts	1944	1943	1942
Eastern	144,961	154,663	135,679
Allegheny	168,845	181,070	158,758
Pocahontas	52,848	58,075	50,051
Southern	118,789	119,332	113,324
Northwestern	83,114	109,469	96,920
Central Western	128,212	122,789	117,534
Southwestern	71,961	74,434	71,198
Total Western Districts	283,287	306,692	285,652
Total All Roads	768,730	819,832	743,464
Commodities			
Grain and grain products	45,578	50,831	39,093
Live stock	21,095	16,037	17,001
Coal	162,603	181,824	153,597
Coke	13,381	15,261	13,771
Forest products	37,683	41,927	36,447
Ore	18,871	49,653	44,451
Merchandise l.c.l.	98,383	96,124	81,789
Miscellaneous	371,136	368,175	357,315
November 25	768,730	819,832	743,464
November 18	864,373	882,287	836,762
November 11	839,489	847,972	826,695
November 4	893,333	754,739	829,663
October 28	916,446	883,727	890,560
Cumulative Total, 48 weeks	40,385,837	39,331,719	39,988,017

In Canada—Carloadings for the week ended November 25 totaled 77,547 as compared with 77,447 for the previous week and 75,968 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
Nov. 25, 1944	77,547	39,300
Nov. 18, 1944	77,447	40,005
Nov. 11, 1944	74,835	38,468
Nov. 27, 1943	75,968	41,030
Cumulative Totals for Canada:		
Nov. 25, 1944	3,330,595	1,809,633
Nov. 27, 1943	3,143,276	1,883,018
Nov. 28, 1942	3,078,489	1,600,724

Reed Will Support Land-Grant Rate Repealer

Although he does not like the Senate interstate commerce committee's "Veterans' Farms Fund" amendment to the House-approved Boren bill for repeal of remaining provisions of the land-grant-rate law, Senator Reed, Republican of Kansas, will nevertheless support the measure in the Senate. He stated his views in a minority report filed on November 30, a couple of days after the Senate got the committee's majority report from Senator McFarland, Democrat of Arizona, who headed the subcommittee which held hearings on the bill.

As noted in the *Railway Age* of December 2, page 858, the Senate committee amendments would defer the effective date of repeal until deductions following the bill's enactment date exceeded $68,272,770, the value assigned to granted lands still held by railroads and not used in their operations. This amount would then be earmarked as a "Veterans' Farms Fund" for the purchase and improvement of lands for subdivision into farms for sale to veterans of the present war.

Senator Reed said he was "in full accord" with the bill's objective to complete the job of repealing the land-grant rates. He went on to outline briefly the origin of the grants and their purposes, noting how the uncertain effect of the deductions on rates used by various shippers "has long been a source of annoyance in the commercial world." The Senator also pointed out that, while the railroads will profit from repeal, "the principal efforts for this change have come from the shippers themselves."

In thus supporting the bill, however, Senator Reed wanted it known that he did not approve the "Veterans' Farms Fund" amendment, "because I think we are combining two distinct and wholly incompatible factors." He said he had supported "every measure for fair treatment for the members of the armed forces," but in this case he can find "no possible justification" for undertaking "to mix alien elements." The House bill he regarded as "a logical bill"; the Senate bill "is a thoroughly illogical bill."

Pullman Traffic Gains

Pullman cars carried 26,976,908 passengers in the first nine months of this year, an increase of 143 per cent over the 11,087,565 transported in 1940 and 15.8 per cent over the record of 23,305,265 carried in 1943, according to E. P. Burke, passenger traffic manager of the Pullman Company. "Although the mass movement of troops from one camp to another in this country is not as large as in the earlier training period," he said, "the military forces are making other demands on railroad services. Men who have spent trying months in service abroad deserve and must get good accommodations when they arrive home on leave. The number of returning casualties from both the European and Pacific theaters is also growing."

Again Calls for Switch Locks in Train Control Territory

A recommendation that the Chicago & North Western install electric switch locking at all main-track hand-operated switches in automatic train control territory has resulted from the Interstate Commerce Commission's investigation of a side collision at a crossover at Missouri Valley, Iowa, on that road's double-track Chicago-Omaha main line, in which 9 passengers were killed and 95 injured. According to the report prepared under the supervision of Chairman Patterson, the accident was caused by "failure to provide adequate protection for a crossover movement."

Train Control, No Wayside Signals—As noted in *Railway Age* of October 7, page 558, this collision occurred about 7:32 p.m. on September 28, and involved a 28-car fast freight, No. 256, the "Calumet," eastbound from Council Bluffs to Chicago, and a 9-car passenger train, No. 203, the "North American," operating from Minneapolis to Omaha, which was beginning a westbound movement (by timetable direction) at Missouri Valley, where it entered the main line from a wye connection with the single-track line to that point from Sioux City. Operations on the main line were by timetable, train orders and continuous-inductive type automatic train control in conjunction with visual and audible cab signals, and there were no wayside signals except at interlockings, although the switch-stands at the crossover were equipped with oil lamps displaying green for main-line movements and red for movements through the crossover.

The current of traffic was to the left, this being the road's standard practice.

The main tracks were divided into blocks as if wayside signals were in use, circuits being arranged so that when a block was occupied or a main-track switch was open a restricted zone was set up extending at least far enough to provide stopping distance in approach of the entrance to that block. When an engine entered such a restricted zone the cab signals, normally green, would display a red-over-yellow indication, requiring a speed reduction to less than 23 m.p.h. At the same time the speed control mechanism would begin to function, an audible speed indicator and an acknowledging indicator would sound, and an automatic brake application would occur unless the engineer forestalled it by moving an acknowledging lever and by reducing speed to 23 m.p.h. within a set distance in accordance with a tapered speed control limit, with the automatic application still becoming effective if and when such limit was not attained by manual brake application.

When a train was moving under the 23 m.p.h. speed restriction, recurrent acknowledgment was required, upon sounding of the acknowledging indicator at intervals of about 3,600 ft., to prevent further automatic brake application, and such automatic application became effective if speed at any time exceeded 23 m.p.h. so long as the restricted zone was operative. Removal of the restriction produced an immediate visual and audible indication in the locomotive, whereupon maximum authorized speed could be resumed.

Apparatus Functioned O.K.—In addition, the switch by which trains moved from the wye connection at Missouri Valley to the eastbound main track was equipped with an automatic semaphore-type switch indicator which displayed a vertical aspect when the block connected with the control circuit was not occupied, this changing to horizontal when a train entered the block. The control circuit extended 9,998 ft. west of this switch, and the block within which train control restriction was set up by lining this switch for movement to the main track from the connecting track likewise extended 9,998 ft. westward from the

switch. Tests made after the accident indicated that all the apparatus involved in these arrangements was functioning properly.

About 4 min. before the collision occurred, the passenger train had stopped on the wye connection, clear of the main track. The front brakeman reported the arrival of the train at that point to the dispatcher by telephone, then set the switches involved so his train could proceed from the wye track to the eastbound main track, then by the adjacent crossover to the westbound main track. He asserted that the switch indicator at the point where the eastbound track was entered displayed a vertical aspect (clear block) when he lined this switch for the movement into the eastbound track. The conductor and other members of the crew of No. 203 were in various cars in the train. Before this train entered the eastbound track its brakeman and fireman observed a train approaching on that track at a distance estimated at 1½ miles, but did not realize it was closely approaching until their engine entered the crossover, at which time it was about 1,200 ft. distant. The engineer of No. 203 endeavored to clear the eastbound track by increasing the speed of his train through the crossover, but its fourth car was struck by the eastbound freight at the fouling point.

No Flag Protection—No flag protection was provided for the movement, which was within yard limits. Under the rules, flag protection was required for a movement from the wye track if the switch indicator semaphore arm was in horizontal position, but the brakeman was positive it was in vertical position just before he moved the switch.

The eastbound freight was moving about 50 m.p.h. on level tangent track as it approached Missouri Valley, the authorized speed being 60 m.p.h. up to a speed restriction sign located about a mile west of the crossover, by which a 35 m.p.h. speed limit was established for a 2 deg. 59 min. curve to the right which began about 636 ft. west of the point of the accident. The cab signals indicated a clear block until the engine reached a point about 2,800 ft. west of the switch leading from the wye to the eastbound track, at which point they first indicated a restricted speed zone, resulting from movement of the switch, although the block affected by the switch involved extended almost 7,200 ft. further west. The engineer immediately reduced speed to forestall the automatic apparatus. His view ahead was obscured by smoke until he saw the passenger train about 1,500 ft. ahead, when he moved the brake valve to emergency position.

Switch Locks Prescribed—The freight was moving about 15 m.p.h. when the collision occurred, and the speed of the passenger train was about 10 m.p.h.

The third to eighth cars, inclusive, of the passenger and the engine and first four cars of the freight were derailed and damaged, the fifth, sixth and seventh cars of No. 203, which were all-steel coaches, being badly damaged.

Commenting on the circumstances, the I. C. C. report said: "In view of the high speeds at which trains are authorized to proceed through Missouri Valley and the fact that the only protection provided for the crossover movement of No. 203 was the aspects displayed by switch indicators, additional protection for these movements is required. If the switch connecting the west leg of the wye and the eastward main track had been equipped with electric switch-locking, it would not have been possible to operate the switch to permit a movement to the eastward main track when a train was closely approaching, as in this case, and the accident would not have occurred."

Ohio Valley Board Meeting

The Ohio Valley Transportation Advisory Board will hold its next meeting at Cincinnati, Ohio, on December 12. The guest speaker will be Wilbur R. Kellogg, city manager of Cincinnati, whose subject will be Municipal Machinery. Other speakers will be John E. Tilford, assistant vice-president of the Louisville & Nashville, whose subject will be Looking Ahead; W. J. McGarry, manager of the Ore and Coal Exchange at Cleveland, who will touch upon Highlights of the Lake Coal and Ore Situation; H. M. Buzek, president of the National League of Wholesale Fresh Fruit and Vegetable Distributors; and C. R. Megee, manager of the Open Car section of the Association of American Railroads who will speak on Meeting the Challenge.

N. Y. Traffic Club Elects Officers for 1945

The New York Traffic Club, at its recent annual dinner, elected the following officers for 1945: President, J. M. Breen (g.f.a., New York Central); 1st vice-president, J. P. Krumech (traf. mgr., American Car & Foundry); 2nd vice-president, H. L. Lauby (east. traf. mgr., Union Pacific); secretary, G. H. Burtis (asst. traf. mgr., Luckenback S. S. Company); treasurer, H. H. Huston (gen. traf. mgr., American Can Company).

Those elected to the board of governors include: C. H. Beard (gen. traf. mgr., Carbide & Chemical Company); R. W. Nelson (east. traf. mgr., Minneapolis & St. Louis); and T. P. Connors (traf. mgr., American Tobacco Company).

Personnel Needs Now 90,000

Reports of needs for additional personnel submitted by employers in the railroad industry, as of November 1, to the Railroad Retirement Board indicate little change from the preceding month, shortages of 90,000 workers being reported by 188 employers. This compares with a 90,000 shortage reported by 187 employers in the previous month and a shortage of 99,000 estimated for the entire industry. Personnel needs increased somewhat in the Southwest, in the area around the Great Lakes, and the Northeast, but decreased by an equal amount in the other areas.

"The reports," the Board states, "suggest that more workers were needed to fill vacant positions in 5 of the 7 occupational groups. The changes indicated by the reports, however, were not so large as those in the two preceding months. In the groups of skilled trades journeymen and skilled trades helpers and apprentices, shortages increased 3.9 and 3.3 per cent, respectively. The major part of the rise in both of these groups reflected greater needs for workers in shop occupations. Needs for additional trainmen and enginemen were only a little larger than on October 1. A substantial increase in the number of jobs open for switchmen was offset by decreased needs in the other occupations in the group.

"Personnel needs for laborers, as reported for November 1, were 2.6 per cent less than a month earlier. Most of the decrease was in needs for track laborers. Fewer additional shop laborers, but more freight and baggage handlers were needed.

Personnel Needs on November 1, 1944, of Employers Reporting for Both October and November

Occupational group	Needs reported		
	Number	Per cent of Total	Per cent of October
1. Executives, professional men, telegraphers, and clerks	3,861	4.3	99.2
2. Trainmen and enginemen	7,643	8.5	100.5
3. Skilled trades journeymen	13,924	15.4	103.9
4. Skilled trades helpers and apprentices	14,185	15.7	103.3
5. Laborers	48,361	53.6	97.4
6. Attendants, cooks, porters and waiters	1,405	1.6	125.6
7. Miscellaneous	774	0.9	101.6
Total	90,153	100.0	100.0

"On the Pacific Coast, in the Northwest and in the Southeast, fewer additional workers were needed than in the preceding month. On the Pacific Coast the decrease of 6.2 per cent was almost all due to a decline in track laborer shortages, which may reflect the arrival of many additional Mexican nationals in this area. Reported shortages of trainmen and enginemen continued at the same level as in the preceding month while needs for journeymen and helpers and apprentices were somewhat larger. In the Southeast, where reports indicate that 5 per cent fewer workers were needed, decreases occurred in all but one of the occupational groups.

"In the Northwest the small decline in needs was principally due to fewer unfilled jobs for trainmen and enginemen and for laborers. In this area, employers also reported nearly 1,400 surplus personnel. This was an indication, for the most part, of the number of workers the railroads expected to release at the end of the iron ore shipping season about the middle of the month. Reports of the Board's employment service indicated that almost all the employees released in this area willing to accept other jobs would be placed elsewhere almost immediately. No actual surplus of labor has developed or is expected.

"Reports received from the other areas indicate somewhat larger needs than in the preceding month. In the Southwest the increase of 3.7 per cent reflected a larger number of jobs open for laborers. Around the Great Lakes and in the Northeast reported shortages increased by 2.4 and 6.6 per cent, respectively. Conclusions as to total needs in these two areas are limited by the lack of reports covering a significant portion of the needs."

First Army Transport Planes Released

The first 20 twin-engined commercial transport aircraft have been declared surplus and are available for allocation, according to a December 3 announcement from W. L. Clayton, Surplus War Property administrator. These planes, which have become non-standard to military specifications, represent the initial declarations of Douglas and Lockheed transports, standard aircraft on commercial airlines in this country and abroad.

Referring to the War Department announcement that the ceiling of 300 aircraft to be operated by domestic airlines had been lifted (see *Railway Age* of December 2, page 858), Mr. Clayton said that it would now be possible to allocate additional planes to domestic airlines.

Elkins Act Violation Claimed

According to advice made public by W. P. Bartel, secretary of the Interstate Commerce Commission, the Clinchfield has entered a plea of *nolo contendere* to an information on one count filed in the federal district court at Chattanooga, Tenn., following an investigation by the commission's Bureau of Inquiry, and has paid a $1,000 fine.

The information charged the road with violation of section 1 of the Elkins Act by granting a shipper operating a finishing mill at Kingsport, Tenn., a concession whereby a shipment of cotton piece goods was transported to that point at less than the lawfully applicable local rate. The rate charged was a "so-called net transit rate," which was lower than the local rate and was not applicable to the shipment in question, it was charged, because the provisions of the tariff naming the transit rate had not been observed.

Century-Old Rail Line to Be Abandoned December 17

Except for a small freight spur for serving industries between Alfred Road and Saco, Me., complete abandonment of the 31 miles of railroad between Rigby and North Berwick, Me., will be effected by the Boston & Maine, by December 17, and on this date, a 102-year-old railroad—the first line to run between Maine and Boston—will pass into history.

Since November 25, all trains between Boston and Portland have been run over the B. & M.'s "western route." The changeover, the railroad announces, has in no way affected either passenger or freight service, since double-tracking of the "western route," just east of the old line, is now nearing completion. Besides, there is much to be gained—the release of 31 miles of heavy rails for use at other points along the system, a complete set of up-to-date signaling and other operating apparatus, as well as a large amount of material for war salvage.

A part of the B. & M. since 1890, when it became known as the "eastern route" of the Portland division, the road was originally opened in 1842 as the Portland, Saco and Portsmouth, and was later acquired by the old Eastern Railroad. It had been the successful operation of this line by the Eastern which led the Boston & Maine, in 1871, to open its own line (now the "western route" of its Portland division), between North Berwick and Portland.

Allocates 22 Tank Barges

Twenty-two steel tank barges now under construction have been allocated by the Office of Defense Transportation to five carriers operating on the Mississippi and Ohio river systems. The barges, scheduled to be delivered during this month and January, will be used for transporting petroleum and other liquid cargo.

Six each will go to the American Barge Line Company and Butcher Allied Industries of Houston, Tex.; four each to the Union Barge Line Corporation and the Ashland Oil & Refining Co. of Ashland, Ky.; and two to the Mississippi Valley Barge Line Company. The O. D. T. announcement embodied a statement from L. C. Turner, director of its Waterways Transport Department, who expressed his belief that the barges are becoming available "at a time when they can render a most vital service, in view of the present and critical shortage of railroad tank cars."

Representation of Employees

The Brotherhood of Railroad Shop Crafts of America has supplanted the International Brotherhood of Electrical Workers, operating through the Railway Employees Department, American Federation of Labor, as the Railway Labor Act representative of Maine Central electrical workers, their helpers and apprentices, according to results of a recent election which has been certified by the National Mediation Board. On the Ogden Union, the Brotherhood of Railroad Trainmen successfully met a challenge from the Switchmen's Union of North America, and retained its right to represent yardmen (foremen, helpers and switchtenders.)

Train porters of the Alton, formerly represented by a committee, have chosen the Brotherhood of Sleeping Car Porters; while the previously unrepresented platform vendor service employees of the Illinois Central have chosen the Joint Council Dining Car Employees Local No. 351, Hotel and Restaurant Employees International Alliance. On the St. Louis-San Francisco and St. Louis, San Francisco & Texas, the International Brotherhood of Electrical Workers has extended its coverage of electrical workers to include linemen, who were previously represented by a system committee of employees.

Calls for Rule Changes to Give Trains More Protection

In a letter to Senator Wheeler of Montana, chairman of the Senate interstate commerce committee, C. H. Dalton, chairman of the Illinois legislative committee of the Order of Railway Conductors, has asserted that the recent collision on the Chicago & Eastern Illinois near Terre Haute, Ind. (reported in *Railway Age* of November 11, page 734, with Interstate Commerce Commission recommendations), was "so uncalled for," and could have been averted if what he called the "third order" governing train movements had been handed to the rear brakeman on the southbound passenger train which ran past the established meeting point and consequently collided with a northbound train. The letter was printed in the Congressional Record of December 5 at Senator Wheeler's request.

The I. C. C. investigation of this accident developed that the front brakeman on the train had taken the train order establishing the meet from the delivery device, but had not communicated with the conductor or other members of the crew as to its contents. Due to confusion as to location, he was not aware that the engineer ran past the meeting point, and made no effort to stop the train. According to Mr. Dalton, this road's conductors "many times" have asked that provision be made for delivering a copy of train orders to the rear of trains. He indicated that, if this had been done, the conductor of the train involved, who was working in the rear car, would have been aware of the meet established by the order and would have taken steps to see that the train was stopped.

The letter went on to criticize "railway executives" for "taking all the protection we had to trains during foggy or inclement weather" through changing rules governing the use of torpedoes "in order to expedite the movement of trains." Several newspaper editorials dealing with alleged failures of the railroads to take advantage of all available technological improvements in their safety practices and particularly with the asserted reluctance of the I. C. C. to force the roads to make further safety measures effective were reprinted in the Congressional Record at the same time, being inserted by Senator Wheeler without comment.

Senate Rejects Tombigbee and Beaver-Mahoning Waterways

Senate pruning of its committee on commerce's version of H.R. 3961, the House-approved omnibus rivers and harbors bill, has resulted in the elimination of the Tennessee-Tombigbee and Beaver-Mahoning projects, but the proposal of Senator Aiken, Republican of Vermont, to include the St. Lawrence seaway was pending as this issue went to press.

The $66,000,000 Tennessee-Tombigbee project was knocked out on December 4 by a vote of 37 to 31. It had previously been rejected by the House before it passed the bill, but the Senate committee put it back. Beaver-Mahoning went out on December 6 by a vote of 52 to 16. This item, also inserted by the Senate committee, would have authorized the expenditure of an additional $1,500,000 on the project for which previous rivers and harbors bills had authorized the expenditure of $37,000,000.

As noted in the *Railway Age* of June 3, page 1085, the bill came from the Senate committee with proposed authorizations for expenditures totaling $498,784,931 for 290 projects. This compares with the House version calling for authorized expenditures totaling $361,000,000. Both versions still include the $60,000,000 Alabama and Coosa rivers project which was among those opposed by the railroads at hearings.

In addition to the St. Lawrence amendment, there is pending before the Senate another amendment proposed by Senator Robertson, Republican of Wyoming, to provide for Interstate Commerce Commission reports on the public convenience and necessity of waterways. It would stipulate that no navigation project could be authorized until the I. C. C., "after public hearing, shall have submitted a report to Congress concerning the public convenience and necessity for the navigation and transportation features of the project."

Metropolitan Traffic Group Installs New Officers

When the Metropolitan Traffic Association of New York, Inc., met recently at Hotel Pennsylvania, New York, Otto C. Birnbrauer, general agent, Minneapolis & St. Louis, was elected president. Other officers chosen for the coming year were: 1st vice-president, Albert Clodfelter, U. S. Industrial Chemicals, Inc.; 2nd vice-president, John J. Lenahan, Canadian Pacific and Soo Line; secretary, John B. Sondey, American Smelting and Refining; treasurer, Vincent P. Golden, Union Bag & Paper Corp.; and financial secretary, Vincent J. Walsh, Illinois Central. Elected to the board of governors were: Samuel P. Bartoletta, North Braddock Motor Lines; J. David Spruill, Binney & Smith; Leo D'Arcy Balbach, Fruit Industries, Ltd.

Construction

PERE MARQUETTE.—This road has started an installation of centralized traffic control between Grandville, Mich., and East Saugatuck, a distance of 27 miles, and in connection with this project is changing the signal system from East Saugatuck to Fennville, Mich., a distance of eight miles, from an overlap to an absolute permissive block. This work involves changes in passing track layouts and installation of electric switch machines, and will be completed at a cost of $135,000. The road is also reconstructing an interlocking plant at Delray, Mich., which is owned jointly by the Pere Marquette, Wabash, Pennsylvania, New York Central and Michigan Central, at a cost of $50,000.

SOUTHERN.—On December 3, the Southern announced plans to restore and modernize its Charleston, S. C., Cooper River banana handling facilities which were destroyed by fire on October 6, 1944. Early consummation of the plans depend upon War Production Board approval and upon obtaining the necessary materials and supplies for the work. The new pier, 440 ft. long and 54 ft. wide, will be rebuilt on the site of the burned pier and, so far as possible, will utilize the substructure of the old pier. In addition, a 96 by 45 ft. classification shed, a two-story brick office and utilities building, a brick oil house, three covered island loading platforms and parallel loading tracks with a capacity of 36 cars will be constructed. Modern, mechanically-operated unloading and handling machinery will be installed on the pier by the United Fruit Company.

Equipment and Supplies

LOCOMOTIVES

The CANADIAN PACIFIC has ordered 30 steam passenger locomotives of 4-6-2 wheel arrangement from the Montreal Locomotive Works.

The CHICAGO & EASTERN ILLINOIS has ordered four 1,000-hp. Diesel-electric switching locomotives from the American Locomotive Company.

The ATCHISON, TOPEKA & SANTA FE has ordered one Diesel-electric switching locomotive of 1,000 hp. for delivery in February, 1945, from Fairbanks, Morse & Co.

The SOUTHERN has ordered two 5,400-hp. Diesel-electric freight locomotives from the Electro-Motive division of the General Motors Corporation and seven 1,000-hp. Diesel-electric switching locomotives from the American Locomotive Company.

The ST. LOUIS-SAN FRANCISCO has ordered seven 1,000-hp. Diesel-electric switching locomotives from the Baldwin Locomotive Works. Federal court authorization of the purchase of these engines was reported in the *Railway Age* of November 18.

The ST. LOUIS SOUTHWESTERN has ordered seven 1,000-hp. Diesel-electric switching locomotives from the Baldwin Locomotive Works and two 5,400-hp. Diesel-electric freight locomotives from the Electro-Motive division of the General Motors Corporation.

The ATCHISON, TOPEKA & SANTA FE has ordered ten 5,400-hp. Diesel-electric freight locomotives from the Electro-Motive Division of General Motors, Inc. When these and other locomotives now on order are delivered, the Santa Fe will have a fleet of seventy-eight 5,400-hp. Diesel-electric fright locomotives.

FREIGHT CARS

The ST. LOUIS SOUTHWESTERN is inquiring for 25 covered hopper cars.

The TOLEDO, PEORIA & WESTERN is inquiring for 50 box cars.

The WESTERN MARYLAND is inquiring for 100 box cars of 50 tons' capacity.

The CHICAGO & EASTERN ILLINOIS is inquiring for 500 hopper cars of 50 tons' capacity.

The BALTIMORE & OHIO has issued inquiries for 500 50½-ft. auto-box cars of 50 tons' capacity.

The CHESAPEAKE & OHIO has ordered 990 50-ton box cars from the Pullman-Standard Car Manufacturing Company.

The ATCHISON, TOPEKA & SANTA FE has ordered 500 automobile-box cars of 50 tons' capacity from the Pullman Standard Car Manufacturing Company.

The MONONGAHELA CONNECTING has ordered 50 44-ft. 6-in. steel gondola cars of 120 tons' capacity from the railroad's own shops.

The ST. LOUIS-SAN FRANCISCO has ordered 50 29-ft. 3-in. steel hopper cars of 70 tons' capacity from the railroads own shops. The railroad first was reported considering the acquisition of this equipment in the *Railway Age* of April 15.

The CHICAGO & NORTH WESTERN has ordered 2,500 freight cars, of which 500 are for the Chicago, St. Paul, Minneapolis & Omaha. Inquiry for this equipment was reported in the *Railway Age* of October 21. The orders were distributed as follows:

	C. & N. W.
500	70-ton hopper cars, Pullman-Standard
500	70-ton hopper cars, General American
750	70-ton gondola cars, Bethlehem Steel
250	70-ton ballast cars, American Car
	C. S. P. M. & O.
100	50-ton hopper cars, Mount Vernon
400	50-ton box cars, American Car

PASSENGER CARS

The NORTHERN PACIFIC has ordered 36 64-passenger lightweight de luxe passenger train coaches of alloy steel construction from the Pullman-Standard Car Manufacturing Company. The inquiry for this equipment was reported in the *Railway Age* of September 16.

The GREAT NORTHERN has ordered 55 passenger cars from the Pullman-Standard Car Manufacturing Company, the types being as follows:

5 baggage-mail cars
20 coaches
5 diners
5 dormitory coffee shop cars
15 sleeping cars
5 observation-bedroom-lounge cars

The latter 20 sleeping cars will not be purchased if the Pullman Company will be able to provide the sleeping cars when the other cars are delivered next year.

The WABASH has placed an order with the American Car & Foundry Co. for a seven-car lightweight passenger train. A Diesel locomotive for the train has been ordered from the Electro-Motive Division of General Motors, Inc. The cost is estimated at $900,000 and, if materials are released promptly by the War Production Board, the train will be delivered late next year. The consist includes one baggage-mail car, one baggage car, one coach, one deluxe coach, one coach-buffet car, one parlor-observation car and one diner. Inquiry for this equipment was reported in the *Railway Age* of September 2.

SIGNALING

THE LOUISVILLE & NASHVILLE has placed orders with the Union Switch & Signal Company for eight sets of composite 2-indication continuous automatic stop and speed control equipment for installation on new Diesel passenger locomotives. The equipment is arranged for operation as a 2-indication speed control system in the train control territory on the Cincinnati-Atlanta line between Corbin, Ky., and Etawah, Tenn. and is also applicable for operation as a 2-indication automatic stop system in the

train control territory between Mobile, Ala., and New Orleans, La.

THE ATCHISON, TOPEKA & SANTA FE has awarded contracts to the Union Switch & Signal Company for materials involved in the construction of remote control systems at Mulvane, Aikman, Melvern, Ellinor, Canadian, Kan.; Gallup, Tex.; Edelstein, Ill.; and Barstow East Yard, Barstow West Yard, Mojave, and Needles, Cal. Materials include coded control machines of various lever combinations for each of these eleven locations, with M-22A dual control low voltage electric switch machines, type H-5 searchlight signals, DN-11 relays and housings, type T-21 hand controlled switch movements, with SL21 electric locks and U-5 switch circuit controllers. The field construction work will be done by railway forces.

Supply Trade

Charles O. Guernsey has resigned as vice-president of the **J. G. Brill Company,** Philadelphia, Pa.

Walter E. Peek, for the past four years a member of the electric engineering staff of the **Electronic Laboratories, Inc.,** Indianapolis, Ind., has been appointed sales manager for the company.

William T. Kelly, Jr., general purchasing agent for the **American Brake Shoe Company,** has been appointed executive vice-president of the company's Kellogg division, which position he will hold in addition to his present duties.

John C. Billings has been transferred to the truck and bus tire department of the **B. F. Goodrich Company** to handle sales of industrial and solid tires. Mr. Billings previously had been in the tire requirements department handling production control.

Clifford W. Johnson has appointed sales representative in Connecticut of the Philco Storage Battery division of the **Philco Corporation,** with headquarters in the company's New York office. Mr. Johnson has been connected with the War Production Board for the past two years.

Francis M. Huffman, formerly assistant general traffic manager, has been appointed traffic manager of the **Bethlehem Steel Company; H. A. Ardinger, J. T. Davin,** and **J. C. Howard** have been appointed assistant traffic managers and **J. T. Hittinger,** as assistant to the general traffic manager.

The **Yale & Towne Manufacturing Co.** has established specialized export departments at two of the company's seven operating plants. **Victor R. Ball** has been appointed expert sales manager for the Philadelphia, Pa., plant and **Henry C. Gebhardt,** export sales manager for the Stamford, Conn., plant.

Elmer H. Wavering, head of the quartz crystal division of the **Galvin Manufacturing Corporation,** has been appointed vice-president in charge of the company's new automotive division and **Walter H. Stellner,** head of the Galvin Company's Washington office, has been appointed vice-president in charge of the new home products division.

W. Conroy Wilson has been appointed sales and service engineer for **Ralph W. Payne,** railway appliances and equipment, Washington, D. C. Mr. Wilson attended William and Mary College. He joined the Virginian in 1938, serving successively as transportation inspector of the Norfolk division, assistant trainmaster of the New River division and trainmaster of the Norfolk division, which latter position he held at the time of his new appointment.

George E. Horney has been appointed assistant to the president and elected a director of the **Pittsburgh Screw & Bolt Corp.,** with headquarters at Pittsburgh, Pa. Mr. Horney formerly was resident vice-president of the company's Gary screw and bolt division. **Gerald J. Garvey,** a member of the sales department of the Gary screw and bolt division, has been appointed general manager of that division with headquarters in Chicago.

P. C. Smith has been appointed assistant to the manager of the transportation and generator division of the **Westinghouse Electric & Manufacturing Co.** and **J. S. Askey, G. L. Moses** and **P. G. Lessman** have been appointed section engineers in the department. Since January of this year, Mr. Smith has been assigned to special work in connection with power trains being built by Westinghouse at its New Philadelphia, Ohio, works.

L. H. Corlette has been appointed vice-president, transit sales, and **W. J. Beatty,** vice-president, foreign sales, of the **ACF-Brill Motors Company,** Philadelphia, Pa. Mr. Corlette has been a member of the sales department since 1929 and district sales manager of the New York office since 1937. Mr. Beatty, who has been connected with foreign sales since 1914 and represented Brill in various countries abroad, was appointed a vice-president of the J. G. Brill Company in June, 1937.

The **Alloys Development Company** has announced the licensing of the **Carnegie-Illinois Steel Corporation** and other subsidiaries of the United States Steel Corporation, the **Republic Steel Corporation,** and the **Lukens Steel Company** for the manufacture of "Aldecor," a steel of the "Cor-Ten" type, which resulted from the research of the Alloys Company and was developed by Republic during the past three years. With the recent announcement by Carnegie-Illinois that both Republic and Lukens have taken licenses for the manufacture of "Cor-Ten," the acceptance of licenses for the production of "Aldecor" makes both compositions available from several large producers.

Howard W. Gilbert, manager of the inspection and test department of the **National Malleable & Steel Castings Co.** since 1918, has been promoted to engineering assistant to the president. Mr. Gilbert joined National Malleable in 1908. He was chairman of the mechanical committee of coupler manufacturers for a number of years. In his new position he will supervise the specialty engineering, specialty development, product testing, road service, and coupler pattern departments. When war restrictions permit, the company plans to expand its product engineering and road service activities. **Harold N. Whitmore,** chief inspector at the company's general office, has been appointed manager of the inspection and test department to succeed Mr. Gilbert. After serving in the Army Air Corps in the last war, Mr. Whitmore joined National Malleable in 1923. He was employed at the company's Cicero, Ill., works from 1928 to 1931. **Archie J. Kashubeck,** of the department of specialty development at Cleveland, Ohio, has been promoted to sales agent at the San Francisco, Cal., Office.

OBITUARY

William T. Hedlund, president of the Elastic Stop Nut Corporation, died November 29.

Roland G. Justus, manager of industrial sales of the Westinghouse Air Brake Company, died November 30 in Louisville, Ky. He was 53 years of age.

Financial

ALTON.—*Reorganization.*—An engineering report on the properties of the Alton, which is the groundwork for the formation of a plan of reorganization, has been completed. The trustee has until January 2 to file with the court proposals for new capitalization and allocation of new securities among holders of existing securities.

ATCHISON, TOPEKA & SANTA FE.—*New Director Elected.*—Alfred W. Eames, president of the California Packing Corporation, San Francisco, Cal., has been elected a director of the Atchison, Topeka & Santa Fe.

ATCHISON, TOPEKA & SANTA FE.—*Dividends.*—A dividend of $1.50 per share on the common stock of the company was declared by the directors on November 30, payable March 2, 1945, to stockholders of record at the close of business January 26, 1945. A dividend of $2.50 per share on the preferred stock of the company was also declared payable February 1 to stockholders of record December 29, 1944.

BALTIMORE & OHIO.—*Promissory Notes.* This road has applied to the Interstate Commerce Commission for authority to issue promissory notes in the amount of $632,350.80 to further evidence indebtedness to be incurred under conditional sales agreements for the purchase of two 4,000-hp. Diesel-electric passenger locomotives at a total cost of $702,612. The rate of interest on the notes would be 1.65 per cent.

BALTIMORE & OHIO.—*Financial Adjustment.*—This road has filed with the Interstate Commerce Commission an application for authority to issue new securities in exchange for issues outstanding, in order

to put into effect substantially the plan of financial adjustment under chapter 25 of the Bankruptcy Act which was outlined in *Railway Age* of September 23, page 495.

Among other transactions under this plan, the following new securities would be issued in exchange for equal principal amounts of equivalent obligations which in most instances have relatively close maturity dates, interest rates and capital fund arrangements on the new issues being subject to the provisions of the adjustment plan:

Refunding notes now held by the Reconstruction Finance Corporation would be exchanged for $84,563,276 of collateral trust bonds due in 1965, the latter to be supported by the pledge of specified collateral;

First mortgage 4 per cent bonds due in 1948 would be exchanged for $76,922,350 of new series A first mortgage bonds due in 1970;

First mortgage 5 per cent bonds due in 1948 would be exchanged for $67,826,500 of new series B first mortgage bonds due in 1970;

Southwestern division bonds due in 1950 would be exchanged for $37,285,500 of new Southwestern division series A bonds due in 1975;

Pittsburgh, Lake Erie & West Virginia bonds due in 1951 would be exchanged for $36,798,000 of new P. L. E. & W. V. series A bonds due in 1975;

Outstanding and pledged Toledo-Cincinnati division bonds, series A, B, and C, all due in 1959, would be exchanged for $10,294,000, $5,000,000 and $9,079,000, respectively, of new series D, E, and F Toledo-Cincinnati division bonds due in 1980, all of the E and F, and a portion of the D series in the new issue being pledged as collateral under other indentures; and convertible 4½ per cent bonds due in 1960 would be exchanged for $61,906,000 of new convertible bonds due in 2010.

New refunding and general mortgage bonds, series G, J, K, and M, would be issued in exchange for equivalent amounts of previously issued refunding and general mortgage bonds, series A, B, C, D, E, and F, with maturity dates unchanged, but with provision for contingent interest payments thereon in place of the unsecured interest arrangements effected in the previous debt adjustment agreed to by the road's security holders. All interest deferred under the 1938 adjustment has been paid however, the road pointed out. Approximately $158,000,000 of the refunding and general mortgage bonds were outstanding in addition to about $102,500,000 pledged as collateral or held in sinking funds. The amount of the road's funded debt in the hands of the public and the R. F. C., including equipment obligations, was almost $566,000,000.

BARRE & CHELSEA.—*Merger of Montpelier & Wells River.*—The Barre & Chelsea and Alvin F. Sortwell, holder of 60 per cent of that road's capital stock, have applied to the Interstate Commerce Commission for authority to acquire the property of the Montpelier & Wells River. The Vermont Valley, a subsidiary of the Boston & Maine, holds the remaining 40 per cent of B. & C. stock and, together with the parent company, holds substantially all the stock of the Wells River. In connection with the transaction, the B. & C. has asked for authority to issue a $345,000 first mortgage 4 per cent note in payment for the property to be acquired, payments to be made thereon in proportion to the earnings of the merged lines.

BOSTON & MAINE.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this road, which owns 2,262 shares of the capital stock of the Concord & Portsmouth and operates its line under lease, to acquire the balance of such stock outstanding at $50 per share, thus permitting liquidation of the lessor.

CENTRAL OF NEW JERSEY.—*New Jersey Taxes Disputed.*—The institutional group of bondholders of the Central of New Jersey has filed objections in the United States district court at Newark, N. J., contending that the maximum amount of taxes that the State of New Jersey may claim for years 1932-1940, inclusive, is $13,438,669, of which trustees have paid $2,432,352. The state contends that the railroad owes about $25,000,000.

CHESAPEAKE & OHIO.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to purchase the property of its wholly-owned subsidiary, the Levisa River, which expects by the end of this year to complete construction of a 19.9-mile line serving an undeveloped coal mining area in eastern Kentucky.

CHICAGO & EASTERN ILLINOIS.—*Equipment Loan.*—The Chicago & Eastern Illinois has invited bids on December 11 to finance $435,000 or 75 per cent of the cost of 200 50-ton steel hopper coal cars purchased from the Mount Vernon Car Manufacturing Company at total cost of $580,000. Deliveries of the cars are expected to begin about January 15, 1945.

CHICAGO & NORTH WESTERN.—*Tax Ruling.*—The United States Treasury Department recently has ruled that the exchange of securities is non-taxable in the Chicago & North Western reorganization, which was consummated last June.

COLUMBIA & MILLSTADT-GULF, MOBILE & OHIO.—*Acquisition.*—In a proposed report, Examiner R. Romero has recommended that the Interstate Commerce Commission deny the application of the Columbia & Millstadt for authority to purchase and operate a 7.61-mile branch of the Gulf, Mobile & Ohio, extending from Millstadt Junction, Ill., to Millstadt. The C. & M. is a new company organized apparently in the interest of the principal shipper on the line, the examiner pointed out, and it proposed to pay for the branch an amount equivalent to its salvage value, making the payment in 10 equal annual installments, with interest. The G. M. & O. offered no objection to the imposition of conditions for the protection of employees. The examiner held that the commission's policy has been to favor acquisition of feeder lines by trunk lines, rather than disposition of short lines to independent operators, and that the affiliation of a short line with the principal industry served by it opens the door to abuses. The record indicated that the G. M. & O. would be able to continue to furnish adequate service on the branch, he pointed out.

DELAWARE & HUDSON.—*Rensselaer & Saratoga Merger.*—Directors of the Delaware & Hudson have approved a merger with the Rensselaer & Saratoga. Stockholders of the R. & S. had voted to merge with the D. & H. on November 8.

DELAWARE & HUDSON—NEW YORK, ONTARIO & WESTERN.—*Settlement with Rome & Clinton.*—Upon purchase of the property of the Rome & Clinton by the New York, Ontario & Western, which has been authorized by Division 4 of the Interstate Commerce Commission, an agreement between the R. & C. and the Delaware & Hudson, lessee of the R. & C., will effect a settlement of litigation and accounts between those two companies and permit liquidation of the R. & C., with its stockholders thereby receiving a $50 per share dividend. The D. & H. lease ran in perpetuity from 1891, but the line was operated by the Ontario under a sublease which required it to pay an annual rental of $5,000 plus taxes. The D. & H. has agreed to pay the R. & C., in exchange for its remaining assets and termination of the lease, and subject to certain adjustments, $172,680 plus rent at the rate of $22,375 per year to the effective date of the purchase, and to discharge R. & C. debts and liabilities.

The 12.76-mile line is to be bought by the O. & W. for $20,000 plus taxes in arrears, to be paid in quarterly installments of $1,250 without interest.

FLORIDA EAST COAST.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has opened its proceeding in this road's reorganization for the filing of briefs by interested parties, including the Atlantic Coast Line, in connection with the petition of S. A. Lynch and others as a committee representing certain old company security holders asking the commission to consider a new plan of reorganization under which the A. C. L. would acquire 60 per cent of the new company's common stock. In the event the committee's petition is granted, the A. C. L. has been authorized to participate in any further proceedings in the reorganization arising therefrom. (Previous item in *Railway Age* of November 25, page 834.)

GULF, MOBILE & OHIO.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue $188,370 of 2 per cent promissory notes in connection with the purchase of two 1,000-hp. Diesel-electric road switching locomotives from the American Locomotive Co. The notes are being issued to the builder and were not offered for sale through competitive bidding, though the market was investigated with a view to obtaining the most favorable terms. (Previous item in *Railway Age* of November 18, page 798.)

HOBOKEN MANUFACTURERS.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has dismissed, as not within the purview of section 1(18) of the Inter-

state Commerce Act, an application of the Hoboken Rail Road, Ware House & Steamship Connecting Co. for authority to repossess and operate the 9.4-mile line at Hoboken, N. J., which it owns but which has been operated under lease by the Hoboken Manufacturers Railroad, a subsidiary of Seatrain Lines, Inc. Manufacturers is in process of reorganization under section 77 of the Bankruptcy Act, but the applicant has been authorized by the court to terminate the lease and resume operation of its property upon presentation of evidence that legal requirements relating to the continuous operation of the road have been complied with.

In filing its application with the commission Connecting took the position that the commission is without jurisdiction because the transaction amounts to a resumption of operation of its own properties after temporary suspension. Seatrain and Manufacturers contended that a showing of public interest should be required on the part of Connecting, and a certificate authorizing abandonment of operation by Manufacturers should be issued by the commission, before transfer of the property, basing this view in part on the ground that Manufacturers and Seatrain held certain property essential to the operation of the line, without which Connecting would be unable to serve the public adequately.

The division cited precedents to the effect that the law requires a lessor, upon termination of a lease, immediately, and without regard to its desires, to perform for itself operations performed for it under the lease, and went on to find that the matter of operation of those properties to which Manufacturers or Seatrain claim title, and the effect thereon of certain reversion clauses in the lease and of supplementary releases said to nullify their application, should properly be determined by the court. No certificate is needed from the commission for Connecting to resume operation, it found, since it "will have no alternative but to resume," if and when the lease is terminated.

MINNEAPOLIS & ST. LOUIS.—*Merger.*—Division 4 of the Interstate Commerce Commission has approved the merger of the Minneapolis & St. Louis Railroad into the Minneapolis & St. Louis Railway, thus returning to single ownership and management the surviving properties of the old M. & St. L., which were divided upon consummation of that company's reorganization. Savings will result from reduced federal taxes and from the substitution of single-line routes and rates in place of joint-line operations resulting from the separation, according to the division's report.

MISSOURI-KANSAS-TEXAS.—*Modification of Agreement.*—Division 4 of the Interstate Commerce Commission has approved a modification of the agreement under which the Missouri-Kansas-Texas of Texas operates the properties of the San Antonio Belt & Terminal, its purpose being to allow uniform accounting adjustments for retirements and so to increase federal tax deductions.

MISSOURI PACIFIC. — *Reorganization.* — The Federal District Court at St. Louis, Mo., on November 30, dismissed without prejudice a petition by Andrew W. Comstock, representing himself and other holders of Missouri Pacific 5¼ secured serial gold bonds, for leave to institute a separate proceeding in the name of Guy A. Thompson, as trustee of the New Orleans, Texas & Mexico to disallow the M. P.'s claim of $10,000,000 and accrued interest against the N. O. T. & M. The petitioners contended that they should be permitted to act for Mr. Thompson because he is in a position of "conflict of trust" as trustee of the M. P. as parent and the N. O. T. & M. as subsidiary. The petition alleged that M. P.'s claim, growing out of advances, caused the N. O. T. & M. to pay out large sums in dividends not justified by its earnings. About 82 per cent of the capital stock of the N. O. T. & M. is pledged as collateral for the secured bond issue, and the bondholders claim that expungement of the M. P.'s claim would vastly improve the value of this collateral. Objections to the petition included those by attorneys for the Reconstruction Finance Corporation, the institutional bondholders and Mr. Thompson.

NEW YORK, ONTARIO & WESTERN. — *Trustees.* — Raymond E. Gebhardt and Ferdinand J. Siegharat have applied to the Interstate Commerce Commission for approval of their appointments as trustees of this road. The application also asks the commission to determine the maximum compensation which may be paid the trustees.

NEW YORK, ONTARIO & WESTERN.—*Trackage Rights.*—Approval has been given by Division 4 of the Interstate Commerce Commission to this road's application for authority to operate under trackage rights over a line of the New York, New Haven & Hartford from Campbell Hall, N. Y., to Maybrook, 2.43 miles, in order that interchange of freight between the two carriers may continue to be made at the latter point to their mutual advantage. No money payment is involved, except in the adjustment of damage resulting from operations, but the New Haven is to perform routine servicing of cars and Ontario locomotives at Maybrook and to maintain the track in consideration of the Ontario's movement of its trains over the line.

ST. LOUIS SOUTHWESTERN.—*Reorganization.*—Charges that the reorganization plan of the St. Louis Southwestern might be in violation of the anti-trust laws were made in a suit filed in the Circuit Court of Appeals in New York on December 4 by the United States Department of Justice. The Department contended that the Cotton Belt was controlled through stock ownership by the Kansas City Southern from July 24, 1926, or before, to at least April 15, 1929; that unification was not approved by the Interstate Commerce Commission; that control was obtained to unify the two railroads; and that the two railroads are competitive.

The petition adds that the Southern Pacific, later in control of the Cotton Belt, failed to enforce causes of action against the Kansas City Southern because of the alleged illegal control by the latter and that Southern Pacific's claim as a creditor and stockholder, therefore should be subordinated to that of all other security holders. The stockholders protective committee previously filed a petition with the Circuit Court of Appeals seeking a stay or to remand the proposed plan of reorganization to the Interstate Commerce Commission so that a new plan of reorganization may be drawn.

SPOKANE, PORTLAND & SEATTLE.—*Merger of Subsidiary.*—Division 4 of the Interstate Commerce Commission has authorized the merger of the properties of the United Railways into the Spokane, Portland & Seattle, thus eliminating a wholly-owned subsidiary of the latter company, which is, in turn, controlled by the Northern Pacific and Great Northern through beneficial ownership of its stock.

WISCONSIN CENTRAL.—*Trustees.*—Ratification of the appointment of E. A. Whitman and Edgar F. Zelle as trustees of this road in reorganization under the provisions of section 77 of the Bankruptcy Act is being sought from the Interstate Commerce Commission.

Average Prices Stocks and Bonds

	Dec. 5	Last week	Last year
Average price of 20 representative railway stocks..	44.76	43.17	34.76
Average price of 20 representative railway bonds..	92.18	91.43	78.69

Dividends Declared

Atchison, Topeka & Santa Fe.—$1.50, quarterly, payable March 2, 1945, to holders of record January 26, 1945; 5% preferred, non-cumul., $2.50, semi-annually, payable February 1, 1945, to holders of record December 29.

Beech Creek.—50¢, quarterly, payable January 2, 1945, to holders of record December 8.

Camden & Burlington County.—75¢, semi-annually, payable January 2, 1945, to holders of record December 15.

Chicago, Burlington & Quincy.—(year-end), $3.00, payable December 23 to holders of record December 13.

Dayton & Michigan.—6% preferred, $1.00, quarterly, payable January 2, 1945, to holders of record December 16.

Delaware.—$1.00, semi-annually, payable January 2, 1945, to holders of record December 15.

Elmira & Williamsport.—7% preferred, $1.60, semi-annually, payable January 2, 1945, to holders of record December 20.

Maine Central.—6% prior preferred, $1.50, quarterly, payable January 2, 1945, to holders of record December 26.

Mobile & Birmingham.—4% preferred, $2.00, semi-annually, payable January 2, 1945, to holders of record December 1.

New York & Harlem.—$2.50, semi-annually, payable January 2, 1945, to holders of record December 15.

Northern Central.—$2.00, semi-annually, payable January 15, 1945, to holders of record December 30.

Oahu Railway & Land.—50¢, payable December 12 to holders of record December 5.

Philadelphia & Trenton.—$2.50, semi-annually, payable January 10, 1945, to holders of record December 30.

Pittsburgh, Fort Wayne & Chicago.—Common and 7% preferred, $1.75 each, quarterly, payable January 2, 1945, to holders of record December 11.

Reading.—2nd preferred, 50¢, quarterly, payable January 11, 1945, to holders of record December 21.

Rensselaer & Saratoga.—$4.00, semi-annually, payable January 2, 1945, to holders of record December 15.

Rochester & Genesee Valley.—$2.00, payable January 2, 1945, to holders of record December 20.

Union Pacific.—$1.50, quarterly, payable January 2, 1945, to holders of record December 2.

Ware River.—Guaranteed, $3.50, semi-annually, payable January 3, 1945, to holders of record December 30.

West Jersey & Seashore.—$1.50, semi-annually, payable January 2, 1945, to holders of record December 15.

Western New York & Pennsylvania.—5% preferred, $1.25, semi-annually, payable January 2, 1945, to holders of record December 30.

Abandonments

CALIFORNIA CENTRAL.—Authority has been granted this road by Division 4 of the Interstate Commerce Commission to abandon its entire line from Chittenden, Calif., to San Juan, 7.94 miles, operation of which was suspended in 1930.

CHICAGO, BURLINGTON & QUINCY.—This company has asked the Interstate Commerce Commission to reopen its Finance Docket No. 14426 proceeding for consideration by the entire commission because Division 4, in a report and order authorizing abandonment of trackage in Iowa and Missouri, made its approval subject to certain conditions for the protection of employees who might be adversely affected, which were, according to the petition, "arbitrary unsupported by the evidence, and void." The conditions, set forth in the report in detail, have been regarded as a precedent by the division in abandonment cases subsequently disposed of. Their essential provisions were outlined in *Railway Age* of November 18, page 799.

The imposition of these conditions in abandonment authorizations, the Burlington claimed, constitutes a fundamental and far-reaching change in commission policy. "They take petitioner's property without due process of law," it argued, and purport to confer private benefits on a limited number of employees without any evidence that such benefits are required by public convenience or necessity. Remarking that the division's requirements give employees affected by abandonments job protection for four years, even though legislation designed to afford employment priorities to veterans contemplates such protection for only one year, the petition asked a hearing by the commission with respect to the lawfulness, reasonableness, propriety, nature and extent of such conditions.

NEW YORK CENTRAL.—The Michigan Central and the New York Central, lessee, have applied to the Interstate Commerce Commission for authority to abandon and to abandon operation of, respectively, a 0.96-mile segment of line within the corporate limits of Toledo, Ohio.

NEW YORK CENTRAL.—In a proposed report Examiner J. S. Prichard has recommended that the Interstate Commerce Commission deny this road's application for authority to abandon a portion of a branch from Limerick, N. Y., to Cape Vincent, 15.75 miles, on the ground that the normal flow of traffic should be sufficient for continued operation, aside from substantial additional traffic in prospect.

READING.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon two segments of its Schuylkill and Susquehanna branch, one from a point near Auburn, Pa., to Auchenbach, 15.17 miles, and one from a point near Rausch Gap to Rockville, 22.58 miles. At the same time abandonment of operation under trackage rights over a line of the Pennsylvania from Rockville to Harrisburg, 5.6 miles, also was authorized. Approval of the applications was subject to the division's standard conditions with respect to the protection of employees.

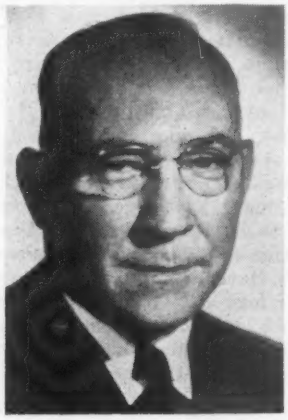
Railway Officers

EXECUTIVE

C. E. A. McCarthy, vice-president and secretary of the Southern at New York, will retire on January 1 after 46 years of service.

Robert B. Pegram, III, vice-president of the Southern at Atlanta, Ga., will retire on January 1 after 54 years of railroad service. **Herbert W. Bondurant,** assistant vice-president (traffic) at Washington, D. C., has been named to succeed him.

George F. Ashby, whose promotion to executive vice-president of the Union Pacific with headquarters at Omaha, Neb., was reported in the *Railway Age* of December 2, was born at Mount Airy, N. C., on September 3, 1885, and entered railway service in January, 1906, with the Atlantic Coast Line, six months later going with the Seaboard Air Line. In March, 1911, he went with the Oregon-Washington Railroad & Navigation Co. (part of the Union Pacific System) at Portland, Ore., where



George F. Ashby

he served in the accounting, engineering and executive departments until 1921. In that year he was sent to Omaha as statistician in the office of the vice-president of operation and in 1934 he was promoted to assistant to the executive vice-president. On October 16, 1937, Mr. Ashby was advanced to assistant to the president, with headquarters at Omaha, and in August, 1941, he was promoted to vice-president and assistant to the president, the position he held at the time of his new appointment.

LeRoy T. Wilcox, whose retirement as assistant vice-president, traffic, of the Union Pacific was reported in the *Railway Age* of December 2, was born in Chicago on May 30, 1876, and entered railway service on January 1, 1891, as a mail boy on the Chicago, Rock Island & Pacific. He subsequently held various positions in the general freight office of the Rock Island at Chicago, and in 1898 he was appointed chief clerk at Kansas City, Mo. In March, 1901, he went with the Union Pacific-Southern Pacific as a rate clerk at Kansas City and was subsequently appointed assistant chief clerk and export and import agent. In November, 1906, Mr. Wilcox was transferred to the office of the traffic director as rate,

Leroy T. Wilcox

tariff and statistical clerk, and 11 years later he became traffic assistant to the interstate commerce attorney in a newly-created department, continuing in that capacity until July 1, 1918, when he was appointed a traffic assistant in the Central Western region of the United States Railroad Administration. He returned to the Union Pacific on March 1, 1920, as assistant to the commerce counsel, and two months later he was advanced to assistant to the freight traffic manager, in charge of commerce work, a position he held until February 1, 1927, when he was promoted to assistant freight traffic manager, with headquarters at Omaha. In March, 1940, he was advanced to general freight traffic manager at Omaha, and in October, 1943, he was promoted to the position he held at the time of his retirement.

Ambrose J. Seitz, whose promotion to assistant vice-president, traffic, of the Union Pacific, with headquarters at Omaha, Neb., was reported in the *Railway Age* of December 2, was born at Effingham, Ill., on October 28, 1897, and entered railway service on March 18, 1914, with the Missouri Pacific, leaving this company a few year later to serve with the United States government during the World War. During this period, he served as confidential clerk to the chief of the Inland Traffic Service of the War Department at Washington and chief clerk to the traffic assistant, Southwestern region, United States Railroad Administration at St. Louis, Mo. From October 1, 1919, to August 1, 1920, Mr. Seitz held the position of clerk to the vice-president in charge of traffic of the Union Pacific System at Omaha, then becoming secretary to Colonel D. C. Jackling, industrialist of San Francisco, Cal. On March 1, 1922, he returned to the Union Pacific as freight traffic agent at San Francisco, being appointed general agent in the freight department at Salt Lake

News Department continued on next left-hand page

TO MAINTAIN LEADERSHIP!

Railroads which have been most successful in handling transportation problems of the war years, are looking forward to the new problems of peace. One of the first vital steps will be the necessity of replacing inadequate motive power.

Lima Super-Power steam locomotives have already been developed to provide the capacity necessary to meet the increasingly exacting demands of the coming decade.

LIMA LOCOMOTIVE WORKS — LIMA LOCOMOTIVE WORKS INCORPORATED — INCORPORATED, LIMA, OHIO

City, Utah, on September 1, 1925. In July 1, 1929, he was further advanced to assistant to the freight traffic manager, with headquarters at Omaha, being appointed general agent in the freight department at New York on January 1 of the following year.

Ambrose J. Seitz

On May 1, 1935, Mr. Seitz was appointed general freight agent at Kansas City, Mo., his title being changed to general freight and passenger agent four months later. On January 1, 1936, he was promoted to assistant traffic manager, with headquarters at Salt Lake City, and in February, 1940, he was advanced to freight traffic manager. In October, 1943, Mr. Seitz was promoted to the position he held at the time of his new appointment.

Lester J. Bachman, whose promotion to assistant to the executive vice-president of the Union Pacific, and assistant secretary of the company, with headquarters at Omaha, Neb., was reported in the *Railway Age* of December 2, was born at Council Bluffs, Iowa, on February 27, 1903, and entered railway service on June 11, 1922, as a stenographer of the U. P. In April, 1929, he was promoted to secretary to the assistant to the vice-president, operations, with headquarters as before at Omaha, and five years later he was advanced to assistant

Lester J. Bachman

statistician, also at Omaha. On October 1, 1937, Mr. Bachman was promoted to statistician in the office of the president, holding that position until his new appointment, effective November 30.

FINANCIAL, LEGAL AND ACCOUNTING

E. M. Smith, general attorney of the New York, Chicago & St. Louis, has been promoted to assistant to the general counsel, with headquarters as before at Cleveland, Ohio.

J. J. Maher, assistant secretary of the Southern at New York, has been named as secretary with the same headquarters to succeed **C. E. A. McCarthy,** whose retirement as vice-president and secretary on January 1 is announced elsewhere in these columns.

John Demento Seay, whose appointment as auditor of the Southern with headquarters at Atlanta, Ga., was announced in the *Railway Age* of December 2, was born at Huntsville, Ala., on March 6, 1887, and entered railroad service with the Southern in April, 1905, as a clerk at Huntsville. After

John Demento Seay

transferring to Corinth, Miss., Mr. Seay was named traveling auditor in 1911, and district traveling auditor in 1919. Two years later he became chief clerk to the auditor of station accounts at Atlanta, remaining in that post until his appointment as district traveling auditor in 1925. In 1927 Mr. Seay was promoted to chief traveling auditor, becoming auditor, station accounts, at Atlanta the following year. He served as assistant auditor there from 1935 until his recent appointment as auditor.

OPERATING

Stanley French Mackay, general superintendent of transportation of the New York, New Haven & Hartford at New Haven, Conn., has been appointed manager of transportation.

C. E. Miller has been appointed acting superintendent, Carolina division, of the Seaboard Air Line, with headquarters at Savannah, Ga., succeeding **J. H. Bowen,** deceased.

A. L. McGregor, assistant superintendent of the Canadian Pacific at Toronto, Ont., has been appointed assistant to the general superintendent with headquarters at Montreal, Que.

R. L. Reimer has been appointed trainmaster of the Chicago Great Western, with headquarters at Rochester, Minn., succeeding **A. P. Ford,** who has been transferred to St. Paul, Minn., replacing **E. B. Wheaton,** deceased.

C. K. Carter, Jr., superintendent of the Georgia, Southern & Florida (part of the Southern) at Macon, Ga., has been named superintendent of the Southern's Richmond division with headquarters at Richmond, Va., succeeding **R. G. Claiborne.**

F. E. House, assistant superintendent of the New York division of the Erie with headquarters at Jersey City, N. J., has retired after 47 years of service. **C. S. Kinback,** trainmaster of the New York division, has been named to succeed Mr. House as assistant superintendent. **T. J. Sanok,** trainmaster of the Susquehanna and Delaware divisions with headquarters at Susquehanna, Pa., has been transferred to replace Mr. Kinback; and **E. J. Robisch,** assistant trainmaster at Marion, Ohio, has been promoted to succeed Mr. Sanok as trainmaster at Susquehanna.

Frederick J. Orner, whose appointment as superintendent of freight transportation of the New York, New Haven & Hartford at New Haven, Conn., was announced in the *Railway Age* of November 25, was born at Newark, N. J., on November 20, 1911, and was graduated from Dartmouth College in 1932 and Harvard School of Business Administration in 1934. He entered railroad service in November, 1935, as a clerk with the New York, New Haven & Hartford, and

Frederick J. Orner

was advanced to merchandise supervisor on October 1, 1941. He was named chief, merchandise bureau, two years later, and remained in that post until his recent promotion to superintendent of freight transportation.

Jesse L. Hurd, whose retirement as assistant general superintendent of transportation of the Northern Pacific, with headquarters at Seattle, Wash., was reported in the *Railway Age* of December 2, was born at DeSoto, Wis., on October 17, 1879, and entered railway service in October, 1901, as a clerk of the accounting department of the Great Northern at St. Paul, Minn. In September, 1902, he went with the Northern Pacific as a clerk, with the same headquarters and five years later he

News Department continued on next left-hand page

A Statement on

THE FRANKLIN SYSTEM OF STEAM DISTRIBUTION

In a review of the recently published Second Edition of Ralph P. Johnson's book, THE STEAM LOCOMOTIVE, *the* Railway Gazette, *of London, comments:*

THE most significant portent which has appeared on the American locomotive scene in recent years has been the performance on test of the Pennsylvania 4-6-2 locomotive as modified with poppet valves, separate inlet and exhaust events, improved ports and passages, and high superheat.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

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was advanced to chief clerk to the car accountant. On May 1, 1910, Mr. Hurd was promoted to car accountant at St. Paul, and on January 16, 1923, he was advanced to assistant general superintendent of transportation, with the same headquarters. In March, 1938, he was transferred to Seattle, remaining in that location until his retirement.

ENGINEERING & SIGNALING

W. L. Codington, division engineer of the Canadian Pacific at Medicine Hat, Alta., has been promoted to district engineer of the Manitoba district, with headquarters at Winnipeg, Man.

A. A. Dise, assistant engineer of structures of the Erie, has been promoted to engineer of structures, with headquarters as before at Cleveland, Ohio, succeeding **Allen M. Knowles,** who has retired. **A. A. Visintainer** has been appointed assistant engineer of structures, replacing Mr. Dise.

MECHANICAL

J. H. Wilson, fuel director of the Illinois Central at Jackson, Tenn., has been promoted to fuel engineer, with headquarters at Fulton, Ky., succeeding **L. E. Gaskill,** who has been appointed traveling engineer, with headquarters at Waterloo, Iowa.

PURCHASES AND STORES

A. L. Prentice, general supervisor of reclamation of the New York Central at Ashtabula, Ohio, has been promoted to manager of stores and reclamation, with the same headquarters. **G. M. Wright** has been appointed general superintendent of scrap and reclamation, also with headquarters at Ashtabula.

Walter S. Galloway, purchasing agent of the Baltimore & Ohio at Baltimore, Md., has retired, and **H. P. McQuilkin,** assistant purchasing agent, has been named to succeed him. **E. W. Walther,** general

H. P. McQuilkin

storekeeper at Baltimore, Md., has been appointed to replace Mr. McQuilkin as assistant purchasing agent; and **V. N. Dawson,** assistant general storekeeper at Baltimore, has been promoted to general storekeeper. Mr. McQuilkin, who was born at Martinsburg, W. Va., on February 6, 1887, entered railroading with the Baltimore & Ohio as a material distributor in the stores

E. W. Walther

department at Cumberland, Md., on April 1, 1905. He became a clerk the following November, and transferred to the motive power department at Cumberland in August, 1906. After serving as paymaster for the N. & G. Taylor Company at Cumberland from October, 1906, to October, 1910, Mr. McQuilkin rejoined the Baltimore & Ohio as division storekeeper at Connellsville, Pa., and transferred to Washington, Ind., three years later. On April 1, 1914, he was advanced to district storekeeper at Cincinnati, Ohio, being named chief clerk to the general storekeeper at Baltimore in January, 1917. He became chief clerk to the purchasing agent in April, 1918, and was promoted to assistant general storekeeper the following June. He served as general storekeeper from May 1, 1919, to July 1, 1927, when he was named assistant purchasing agent. Mr. McQuilkin was granted leave of absence to accept the position of chief of procurement, Transportation Corps, with headquarters at Washington, D. C., on January 4, 1943, and on September 1, 1944, he returned to the Baltimore & Ohio as assistant purchasing agent, the position he held at the time of his recent appointment as purchasing agent.

Mr. Galloway entered railway service in June, 1889, as a machinist apprentice of the Cincinnati, Hamilton & Dayton (now the Baltimore & Ohio). After serving successfully as claim clerk, locomotive fireman and rodman in the engineering corps of that road, Mr. Galloway joined the Baltimore & Ohio in February, 1900, as inspector of material. He became resident inspector at Pittsburgh, Pa., thereafter, and served subsequently as assistant engineer of tests at Baltimore, roundhouse foreman and general foreman at Cumberland, assistant master mechanic at Mt. Clare (Baltimore), and master mechanic at Grafton, W. Va. He was promoted to assistant to the purchasing agent at Baltimore in March, 1905, and was advanced to purchasing agent for the Allegheny region in July, 1918, the position he held at the time of his appointment in March, 1920, as purchasing agent for the system, from which he now retires.

Mr. Walther, who was born at Oberendfelden, Switzerland, on November 27, 1883, received his education in the public schools at Parkersburg, W. Va., and entered railroad service with the Baltimore & Ohio in the stores department at Parkersburg on August 1, 1903. One year later he was promoted to assistant storekeeper at Holloway, Ohio, and he advanced to storekeeper at Cleveland, Ohio, on July 1, 1905. In June, 1909, Mr. Walther went to Baltimore as chief clerk in the stores department of the Mt. Clare shops, where he became assistant storekeeper in January, 1911. He transferred to the purchasing department in November, 1913, as a clerk, and served as assistant chief clerk from September, 1915, to June, 1918, when he was advanced to chief clerk. Mr. Walther was promoted to assistant to purchasing agent on September 1, 1919, and remained in this post until his appointment as general storekeeper at Baltimore on July 1, 1927. During Mr. McQuilkin's tenure as chief of procurement, Mr. Walther replaced him as assistant purchasing agent, but he returned to his position of general storekeeper upon Mr. McQuilkin's return in September of this year, and remained in that post until his recent appointment as assistant purchasing agent.

V. N. Dawson

Mr. Dawson was born at Rowlesburg, W. Va., on May 20, 1893, and entered the service of the Baltimore & Ohio in the motive power department at Weston, W. Va., on April 26, 1910. After serving in that department for three years, he transferred to the stores department at Dayton, Ohio, as oil and material distributor of the Cincinnati, Hamilton & Dayton (now the Baltimore & Ohio). He became storekeeper there for the Baltimore & Ohio on March 1, 1914, and transferred to Lima, Ohio, three years later. Mr. Dawson was furloughed for military service from May to December, 1918, when he returned to the Baltimore & Ohio as clerk in the general storekeeper's office at Baltimore. The following January he entered the office of the regional purchasing committee, Allegheny region, at Philadelphia, Pa., rejoining his former road on January 16, 1920, as district storekeeper, Chicago Terminal, Chicago. He transferred to Cincinnati,

News Department continued on next left-hand page

Complete ARCHES

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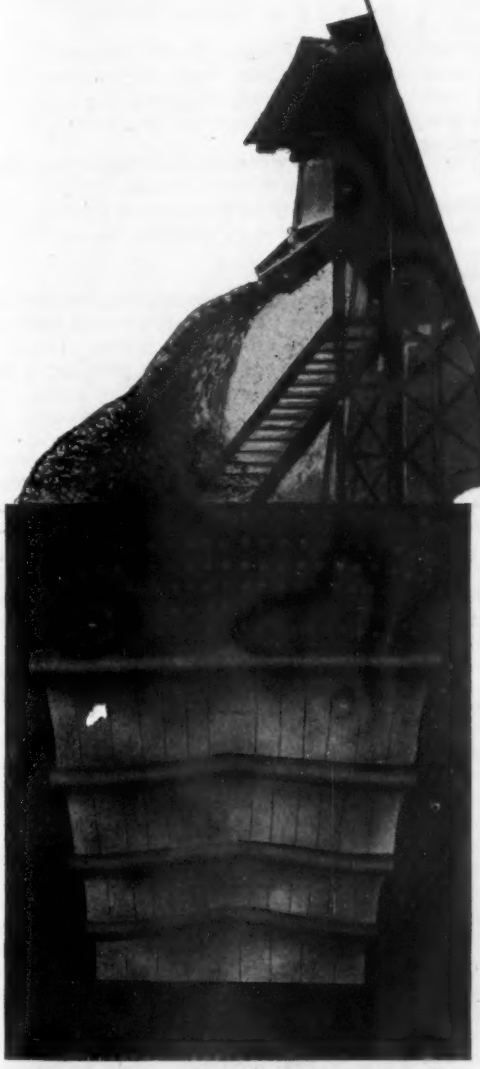

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Experience has proved that only with a complete locomotive arch can maximum fuel economy be realized.

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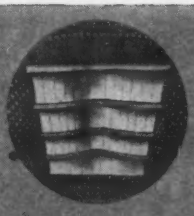

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Locomotive Combustion Specialists

Ohio, in the same capacity in October, 1923, and was promoted to assistant general storekeeper at Baltimore on July 1, 1927. He served as district storekeeper at Pittsburgh, Pa., from July 1, 1932, to July 1, 1937, when he returned to Baltimore as assistant general storekeeper, remaining in that position (except for his period of service as acting general storekeeper from January, 1944, to September, 1944) until the time of his recent appointment as general storekeeper.

F. S. Austin, purchasing agent of the New York Central System at New York, has been named general purchasing agent with the same headquarters, and **E. S. Bonnet,** first assistant purchasing agent, has been appointed fuel purchasing agent there. **R. I. Renfrew,** general supervisor of stores, and **E. O. Hornig, W. J. Warnock,** and **W. H. Ruskaup, Jr.,** sssistant purchasing agents at New York, have all been named assistant general purchasing agents with the same headquarters.

TRAFFIC

Frank Lee Jenkins, whose promotion to the newly created position of general passenger traffic manager of the Southern with headquarters at Washingon, D. C., was announced in the *Railway Age* of November 25, was born at Statesville, N. C., on November 28, 1881, and entered railroad service on November 1, 1900, as a clerk in the city freight and passenger office of the Southern at Charlotte, N. C. He became assistant ticket agent of the depot office at Augusta, Ga., in November of the following year, and assumed the same position in the city office there the next May. He served as depot ticket agent at Charleston, S. C., from

Frank Lee Jenkins

November 1, 1907, to March 1, 1911, when he returned to Augusta in the same capacity, shortly thereafter becoming traveling passenger agent with the same headquarters. Mr. Jenkins was named district passenger agent at Washington in March, 1912, and transferred to Birmingham, Ala., in November, 1915, where he served as division passenger agent from April 1 to June 1, 1917. He served also as special passenger representative at Atlanta, Ga., from June 1 to August 1 of the same year, when he became division passenger agent at Jacksonville, Fla. On May 1, 1918, Mr. Jenkins returned to Birmingham in the same capacity, and remained there until March 1, 1920, when he was named district passenger agent at Philadelphia, Pa. He was advanced to assistant general passenger agent at Washington in July, 1926, and was appointed passenger traffic manager there in April, 1931, remaining in that post until his recent promotion to general passenger traffic manager with the same headquarters.

D. W. Quick, assistant general freight agent of the Chicago Great Western at Omaha, Neb., has been transferred to Minneapolis, Minn., succeeding **W. E. Semmer,** who has retired. **J. S. Coward** has been appointed assistant general freight agent at Omaha, replacing Mr. Quick.

J. R. Cutwright, assistant general freight agent of the Norfolk & Western at Roanoke, Va., has been named assistant freight traffic manager with the same headquarters. **F. B. Wright,** assistant chief rate clerk, has been appointed assistant general freight agent at Roanoke succeeding Mr. Cutwright.

W. C. Jacobs, district freight and passenger agent of the Missouri Pacific at Texarkana, Ark., has been promoted to general agent, with headquarters at Shreveport, La., succeeding **W. R. Huhner,** who has been transferred to Milwaukee, Wis., replacing **W. W. Trimble,** deceased. **A. T. Peers,** commercial agent at Ft. Worth, Tex., has been advanced to general agent, with headquarters at Waco, Tex.

T. D. Ferguson, assistant traffic manager of the Waterloo, Cedar Falls & Northern at Chicago, has been promoted to traffic manager, with headquarters at Waterloo, Iowa, succeeding **S. W. Hansen,** whose death on November 18 is reported elsewhere in these columns. **Bernise DuJardin,** chief clerk of the Chicago office, has been advanced to general agent, with the same headquarters, a newly-created position.

William E. Hines, general foreign freight agent of the Atchison, Topeka & Santa Fe at Chicago, has been promoted to assistant to the general freight traffic manager, with the same headquarters, succeeding **C. E. Hattel,** who has retired. **Robert D. Lynch,** chief clerk of the freight traffic department, has been advanced to assistant general freight agent, with headquarters as before at Chicago, replacing **George J. Steinmiller,** who has been promoted to general foreign freight agent, relieving Mr. Hines.

SPECIAL

John Russell Mecouch, editor of the Mutual Magazine of the Pennsylvania at Philadelphia, Pa., has retired from that position because of ill health.

A. T. Martin, auditor of the Southern at Atlanta, Ga., has been named employee relations officer in the accounting department.

Kenneth A. Browne has been appointed research consultant to the presidents of the Chesapeake & Ohio, the New York, Chicago & St. Louis, and the Pere Marquette, with headquarters at Cleveland, Ohio. Mr. Browne was formerly with the Wright Aeronautical Corporation as research engineer and technical consultant.

Phillip G. Otterback, vice-chairman of the Committee of Public Relations of the Association of Western Railways, has been promoted to secretary of the association, with headquarters as bfeore at Chicago. **Paul D. Shoemaker,** previously connected with the Associated Press, has been appointed a member of the public relations staff of the association.

OBITUARY

A. P. Prendergast, who retired as mechanical superintendent of the Texas & Pacific at Dallas, Tex., in 1934, died on October 17 at Cameron, W. Va.

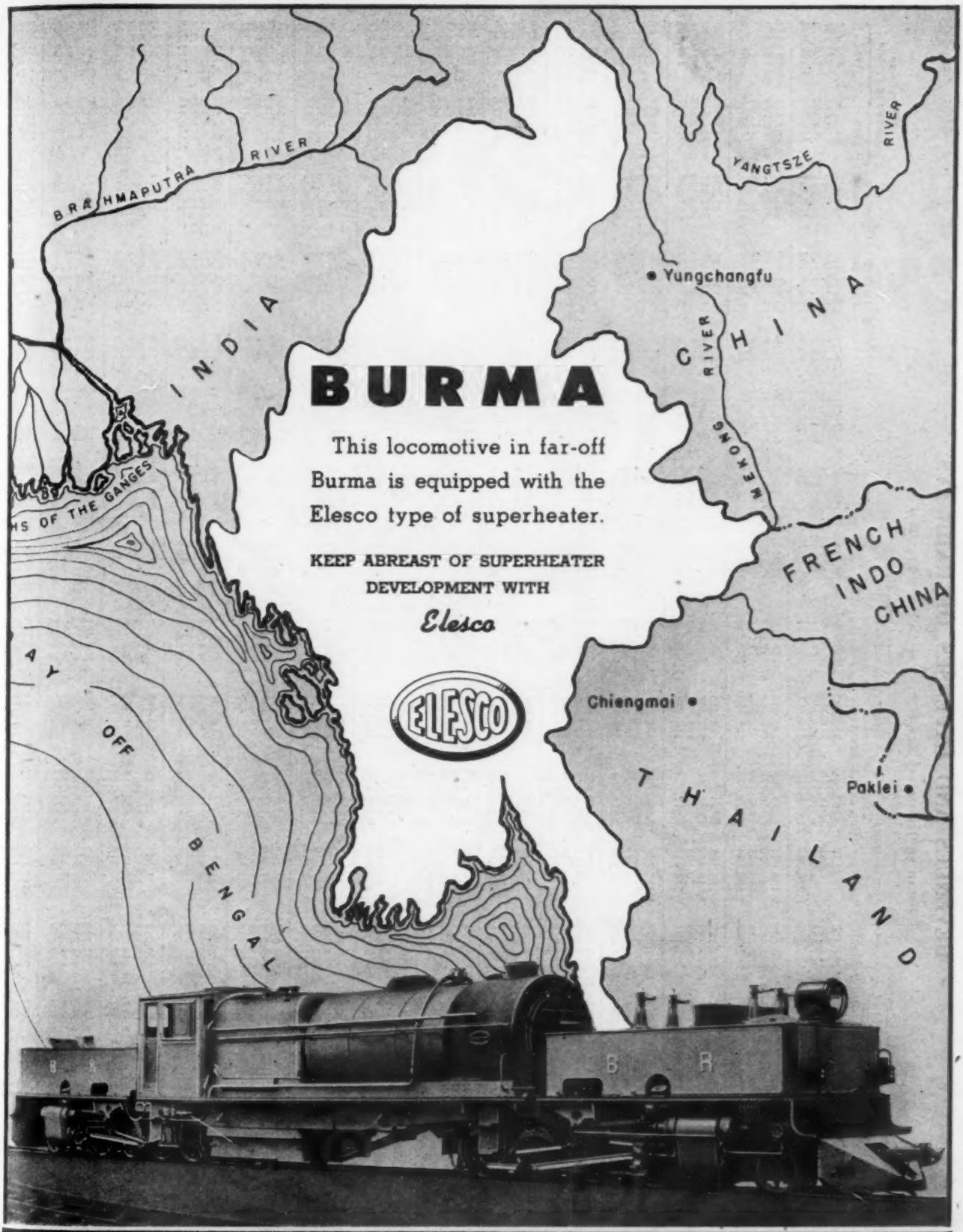
S. W. Hansen, traffic manager of the Waterloo, Cedar Falls & Northern, with headquarters at Waterloo, Iowa, died at Cedar Falls, Iowa, on November 18.

S. J. Owens, general agent, passenger department, of the Chicago, Burlington & Quincy, with headquarters at Chicago, died at his home at Bensenville, Ill., on December 1.

Alonzo J. Hammond, who resigned in September, 1922, as assistant chief engineer of the Chicago Union Station Company, and who served in 1930 as president of the American Society of Civil Engineers, died at Washington, D. C., on December 2.

Herbert Lawrence Ripley, who retired as contract agent of the New York, New Haven & Hartford at New Haven, Conn., in July, 1943, died on December 1 at New York. Mr. Ripley was born at Brewer (Holden), Me., on February 2, 1874, and entered railroad service with the New York, New Haven & Hartford in 1898 as an inspector. After serving in various engineering positions Mr. Ripley became corporate and valuation engineer in 1920, and was named assistant to the vice-president at Boston, Mass., in 1930. He was appointed contract agent on August 1, 1935, and remained in that post until his retirement in 1943.

Harry T. Shanks, who retired in June, 1937, as general purchasing agent of the Louisville & Nashville, died at his home in Louisville, Ky., on October 4. Mr. Shanks was born at Louisville and entered railway service with the L. & N. in October, 1884, as a clerk in the car accountant's office at Louisville. In 1890 he was advanced to chief clerk in that department, which position he held until 1896, when he was appointed car accountant of the Atlanta & West Point and the Western Railway of Alabama (affiliates of the L. & N.), with headquarters at Montgomery, Ala. Later Mr. Shanks also served as car accountant of a number of other affiliates of the L. & N. In 1906 he returned o Louisville as chief clerk in the purchasing department of the parent company. On October 26, 1916, he was advanced to assistant purchasing agent and less than a year later he was further promoted to purchasing agent, his title later being changed to general purchasing agent.



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REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1944

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1944	Net railway operating income 1943
Akron, Canton & Youngstown	Oct.	171	$384,370	$137	$402,606	$86,682	$30,928	$18,534	$117,380	$270,812	67.3	$131,794	$80,423	$63,162	$83,618
	10 mos.	171	3,752,586	1,661	3,916,118	712,014	359,995	183,351	1,129,653	2,565,314	65.5	1,350,804	825,480	659,687	852,827
Alton	Oct.	959	2,083,183	794,082	3,210,936	405,449	459,374	68,502	1,017,836	2,091,975	65.2	1,118,961	745,795	516,263	199,470
	10 mos.	959	20,511,905	7,926,263	31,695,352	4,413,117	4,487,233	696,627	10,120,919	21,036,890	66.4	10,658,462	5,778,524	3,516,510	3,309,014
Atchison, Topeka & Santa Fe System	Oct.	13,093	34,820,636	9,168,804	47,295,369	5,733,652	7,120,111	615,917	12,379,013	26,728,190	56.5	20,567,179	6,866,207	6,581,422	6,793,839
	10 mos.	13,105	312,782,467	94,340,280	437,130,031	52,889,742	67,357,042	6,193,188	114,782,170	247,766,791	56.7	189,363,240	50,718,587	46,706,789	52,152,870
Atlanta & West Point	Oct.	93	288,218	153,706	487,430	56,056	59,761	10,089	175,132	321,622	66.0	165,808	65,395	34,898	31,393
	10 mos.	93	2,762,049	1,586,794	4,771,675	505,053	569,289	98,387	1,616,465	2,982,669	62.5	1,789,006	615,439	335,646	402,211
Western of Alabama	Oct.	133	271,385	155,505	463,258	63,910	60,576	10,391	165,149	317,147	68.5	146,111	49,294	38,860	51,229
	10 mos.	133	2,723,989	1,616,424	4,686,759	522,201	625,467	101,580	1,523,075	2,945,490	62.8	1,741,269	531,811	454,823	561,883
Atlanta, Birmingham & Coast	Oct.	639	560,083	50,194	642,566	105,884	112,560	28,943	264,953	533,507	83.0	109,059	56,920	19,938	—36,004
	10 mos.	639	5,693,101	514,013	6,517,114	1,114,192	1,018,331	281,476	2,465,019	5,103,437	78.3	1,413,677	660,570	318,021	543,884
Atlantic Coast Line	Oct.	4,961	7,861,434	3,457,838	12,286,202	1,341,121	2,195,429	177,768	3,895,234	8,027,723	65.3	4,258,479	758,479	556,774	405,862
	10 mos.	4,962	83,704,433	37,877,660	129,693,460	12,344,163	20,349,127	1,809,594	38,150,222	76,665,561	59.1	53,027,899	14,777,899	11,051,504	13,254,685
Charleston & Western Carolina	Oct.	343	338,294	13,582	360,922	47,420	65,590	10,785	120,546	250,957	69.5	109,965	39,965	43,351	29,139
	10 mos.	343	3,647,467	123,520	3,855,564	525,903	596,549	101,742	1,193,168	2,484,702	64.4	1,370,862	645,862	638,552	637,371
Baltimore & Ohio	Oct.	6,132	27,757,091	4,515,586	33,977,854	5,178,644	6,495,320	521,765	11,254,422	24,561,300	72.2	9,416,554	4,546,897	3,681,454	4,651,839
	10 mos.	6,145	265,987,277	42,949,891	325,966,417	47,562,460	64,902,237	4,994,245	107,480,208	235,730,317	72.3	90,236,100	46,034,561	38,091,576	56,189,527
Staten Island Rapid Transit	Oct.	24	272,078	116,354	397,546	103,519	46,769	1,116	116,472	295,923	74.4	101,623	64,991	49,962	145,567
	10 mos.	24	3,205,868	1,174,714	4,474,660	728,934	395,400	12,636	1,175,590	2,582,681	57.7	1,891,979	1,169,418	968,217	1,053,725
Bangor & Aroostook	Oct.	602	811,345	83,248	948,912	135,854	135,474	7,397	199,203	511,885	53.9	437,027	109,931	133,098	333,789
	10 mos.	602	6,772,351	791,471	7,983,073	1,313,882	1,210,442	62,665	2,004,190	4,923,027	61.7	3,060,046	954,729	1,179,479	1,423,757
Bessemer & Lake Erie	Oct.	214	1,851,280	1,689	1,867,128	139,922	758,951	13,169	361,094	1,331,831	71.3	535,297	264,647	394,200	378,772
	10 mos.	214	17,116,821	18,385	17,276,943	1,465,444	7,335,457	137,081	3,449,886	12,862,877	74.5	4,414,066	2,030,438	3,785,608	2,092,470
Boston & Maine	Oct.	1,818	5,278,724	1,570,260	7,450,893	1,262,454	1,292,821	80,601	2,659,590	5,541,818	74.4	1,909,075	1,100,472	829,084	874,440
	10 mos.	1,819	50,533,249	16,329,891	73,278,640	11,592,832	12,369,881	788,680	26,569,478	53,731,735	73.3	19,546,905	11,302,348	8,548,991	10,511,847
Burlington, Rock Island	Oct.	228	249,944	56,478	324,627	34,095	29,619	3,196	109,586	190,411	58.7	134,216	123,353	72,536	50,634
	10 mos.	228	1,756,964	625,237	2,533,965	291,086	257,503	31,691	843,908	1,574,204	62.1	959,761	862,054	518,993	518,631
Cambria & Indiana	Oct.	35	156,038	.....	156,148	17,931	52,609	577	18,413	97,174	62.23	58,974	—19,255	58,665	86,430
	10 mos.	35	1,533,408		1,534,138	131,237	502,726	5,790	189,990	900,574	58.70	633,564	—240,839	543,613	477,112
Canadian Pacific Lines in Maine	Oct.	234	409,642	79,188	517,622	126,310	90,853	6,457	217,447	451,773	87.3	65,849	42,992	—102,282	165,350
	10 mos.	234	3,918,199	804,053	5,016,738	705,783	731,241	63,573	1,589,038	3,211,299	64.0	1,805,439	1,583,560	1,023,856	1,904,517
Canadian Pacific Lines in Vermont	Oct.	90	90,733	34,682	138,494	59,671	31,471	2,364	135,152	234,232	169.1	—95,738	—104,767	—144,277	—109,504
	10 mos.	90	854,860	280,108	1,266,505	388,089	314,757	23,178	949,101	1,734,813	137.4	—468,308	—561,786	—881,736	—801,321
Central of Georgia	Oct.	1,815	2,132,190	747,869	3,170,459	419,421	517,148	72,574	1,185,306	2,325,248	73.3	845,211	534,680	487,573	564,395
	10 mos.	1,815	22,522,520	7,298,424	32,694,335	4,264,144	5,113,125	706,520	11,779,548	23,270,327	71.2	9,424,008	6,114,793	5,479,554	7,408,336
Central of New Jersey	Oct.	654	4,108,078	613,393	5,035,347	584,262	912,517	58,851	2,008,128	3,734,227	74.2	1,301,120	737,846	497,346	293,645
	10 mos.	655	41,708,228	6,341,848	51,132,210	5,669,097	9,098,885	540,317	20,972,004	37,925,588	74.2	13,206,622	7,745,898	4,674,142	5,301,894
Central Vermont	Oct.	422	587,435	76,000	728,276	110,603	104,507	9,765	345,188	595,150	81.7	133,126	85,621	38,687	109,008
	10 mos.	422	5,985,434	837,000	7,371,420	1,125,740	1,093,480	105,897	3,197,197	5,784,775	78.5	1,586,645	1,120,143	652,190	1,168,171
Chesapeake & Ohio	Oct.	3,072	16,160,463	1,945,783	18,922,902	2,380,804	3,710,710	296,328	4,933,471	11,864,310	62.7	7,058,592	2,428,480	2,826,542	3,227,858
	10 mos.	3,073	156,950,049	19,903,822	183,638,578	22,035,848	35,464,797	2,401,267	47,708,314	113,176,941	61.6	70,461,637	24,560,168	28,062,542	31,394,307
Chicago & Eastern Illinois	Oct.	912	2,012,694	615,072	2,860,544	346,241	444,010	66,375	947,894	1,915,034	67.0	945,510	345,510	151,333	211,924
	10 mos.	912	20,023,728	6,350,681	28,755,224	3,603,888	4,479,106	651,779	10,089,464	19,917,628	69.3	8,837,596	5,058,927	2,570,446	3,313,239
Chicago & Illinois Midland	Oct.	131	520,058	1,563	553,782	90,518	91,687	22,634	146,864	381,012	68.8	172,770	73,714	80,156	84,651
	10 mos.	131	5,569,161	15,329	5,886,001	744,951	885,556	221,187	1,432,783	3,557,332	60.4	1,541,090	787,579	813,994	829,519
Chicago & North Western	Oct.	8,077	10,400,257	2,889,110	14,816,913	1,809,875	2,765,913	223,403	4,950,471	10,278,267	69.4	4,538,646	2,148,972	2,047,163	5,050,944
	10 mos.	8,087	94,891,724	31,072,110	139,418,163	18,334,065	25,255,983	2,441,380	46,518,091	97,535,269	70.0	41,882,894	20,036,440	19,797,972	32,748,252
Chicago, Burlington & Quincy	Oct.	8,988	16,751,719	3,292,607	22,114,299	3,803,135	2,798,401	280,694	5,403,012	12,828,061	58.0	9,286,238	2,944,581	2,424,008	2,606,582
	10 mos.	8,990	149,005,210	33,582,757	199,460,762	34,485,733	27,475,593	2,847,196	50,715,468	121,317,545	60.8	78,143,217	27,050,174	22,525,153	35,077,674
Chicago Great Western	Oct.	1,500	2,108,321	217,340	2,561,795	390,851	309,531	66,084	929,380	1,769,817	69.1	791,978	487,309	256,680	394,324
	10 mos.	1,500	20,888,279	2,423,829	25,258,020	3,774,266	3,210,085	646,509	9,230,129	17,604,204	69.7	7,653,816	4,500,023	2,633,745	3,208,337
Chicago, Indianapolis & Louisville	Oct.	541	939,902	100,052	1,118,628	186,584	179,359	34,826	380,075	666,472	59.6	452,156	348,912	318,187	345,178
	10 mos.	541	9,531,087	1,097,673	11,428,665	1,348,571	1,881,031	325,014	3,633,565	7,596,112	66.5	3,832,553	2,700,471	2,302,152	2,851,642

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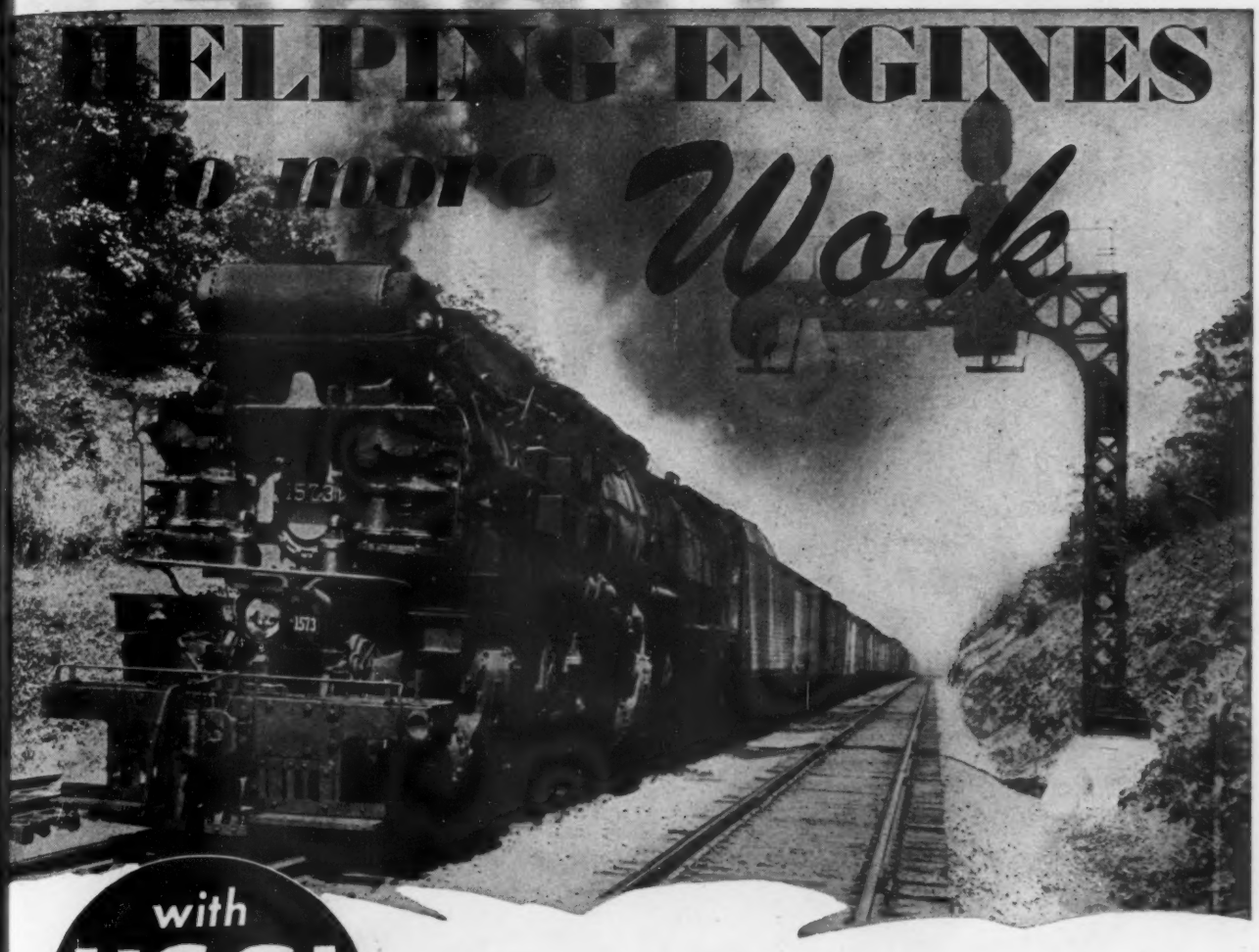
HELPING ENGINES do more Work



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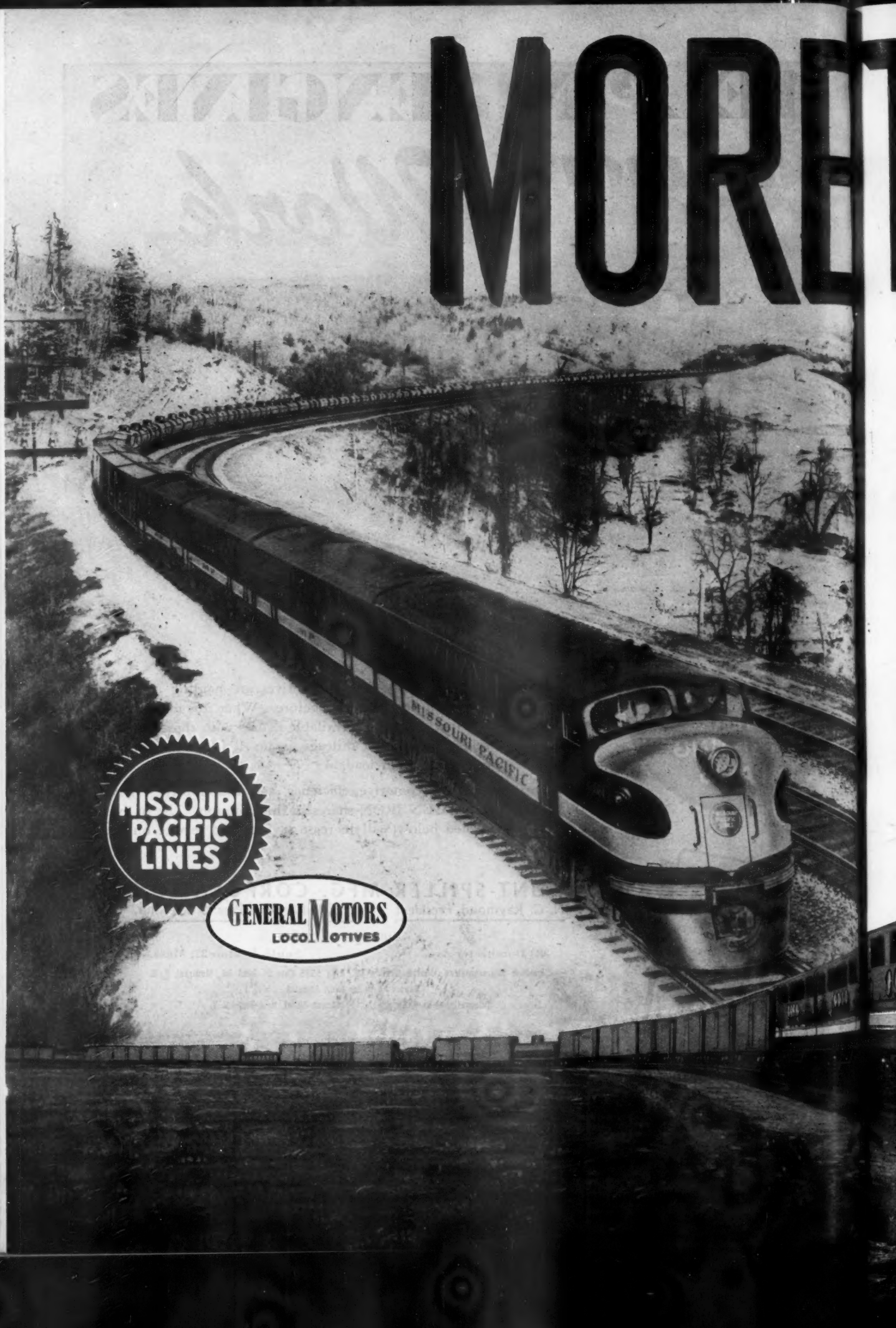
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★ *ON TO FINAL VICTORY — BUY MORE WAR BONDS* ★

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION LA GRANGE, ILLINOIS, U.S.A.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1944	Net railway operating income 1943
Chicago, Milwaukee, St. Paul & Pacific	Oct.	10,723	$15,606,131	$2,764,596	$20,422,821	$3,643,855	$3,064,798	$300,984	$6,521,692	$14,289,209	70.0	$6,133,612	$3,633,612	$3,088,414	$5,409,515
	10 mos.	10,728	143,047,765	28,263,186	189,118,193	32,359,500	28,930,576	2,989,349	61,921,864	133,089,204	70.4	56,028,989	30,239,989	27,050,097	47,082,542
Chicago, Rock Island & Pacific	Oct.	7,751	11,213,117	3,756,329	16,219,457	2,322,553	2,249,987	345,629	4,508,958	10,024,320	61.8	6,195,137	2,010,426	1,410,851	2,404,774
	10 mos.	7,751	109,273,892	37,329,090	158,518,361	20,020,263	21,779,673	3,400,604	44,814,963	96,062,144	60.6	62,456,217	29,860,999	24,083,454	34,772,854
Chicago, St. Paul, Minneapolis & Omaha	Oct.	1,617	1,783,308	369,064	2,357,369	278,111	327,428	41,451	908,349	1,637,860	69.5	719,509	484,402	435,897	538,289
	10 mos.	1,617	17,024,565	3,692,890	22,704,099	3,176,030	3,353,335	403,151	9,560,282	17,314,063	76.3	5,390,036	3,524,965	2,891,992	4,229,375
Clinchfield	Oct.	302	1,180,721	10,367	1,199,696	94,648	196,671	21,812	256,004	589,477	49.1	610,219	473,385	497,876	325,233
	10 mos.	302	11,743,508	111,311	11,939,677	862,398	1,894,498	224,730	2,462,249	5,652,674	47.3	6,287,003	4,983,663	5,170,529	4,422,652
Colorado & Southern	Oct.	748	1,259,488	317,036	1,686,601	280,525	251,215	16,059	529,560	1,125,463	66.7	561,138	413,235	300,745	310,052
	10 mos.	748	9,636,310	3,284,141	13,925,435	1,886,358	2,204,469	174,648	4,279,488	9,014,264	64.7	4,911,171	3,032,923	2,409,145	2,665,572
Fort Worth & Denver City	Oct.	804	1,013,106	409,913	1,527,474	366,569	152,242	23,870	458,563	1,059,597	69.4	467,877	298,442	182,951	449,121
	10 mos.	804	8,519,313	4,559,212	14,112,370	2,584,672	1,430,474	250,524	3,601,248	8,464,925	60.0	5,647,445	3,115,585	2,434,195	3,281,458
Colorado & Wyoming	Oct.	42	100,245	.....	152,249	13,739	17,057	789	53,086	89,060	58.4	63,189	4,156	3,322	22,435
	10 mos.	42	885,335	.....	1,412,530	116,028	200,325	7,522	544,806	913,484	64.6	499,046	304,517	296,922	218,595
Columbus & Greenville	Oct.	168	140,620	8,372	159,151	26,351	19,911	4,664	49,444	115,269	72.4	43,882	18,943	19,173	23,092
	10 mos.	168	1,167,239	115,569	1,375,605	283,158	187,565	45,276	462,177	1,117,346	81.2	258,259	84,824	100,159	48,466
Delaware & Hudson	Oct.	846	4,055,662	223,640	4,379,238	567,699	1,121,708	47,915	1,421,268	3,271,725	74.7	1,107,513	788,292	794,736	1,246,361
	10 mos.	847	39,476,874	2,100,832	42,600,466	5,053,762	10,524,435	476,231	14,281,478	31,493,950	73.9	11,106,516	7,471,412	7,391,062	8,345,984
Delaware, Lackawanna & Western	Oct.	973	5,176,690	930,269	6,761,439	706,652	994,279	113,946	2,745,991	4,747,713	70.2	2,013,726	959,670	879,228	—189,670
	10 mos.	973	50,384,771	9,273,128	65,922,008	7,265,810	10,424,893	1,147,415	26,822,025	47,496,934	72.1	18,425,074	5,642,986	4,763,120	9,392,380
Denver & Rio Grande Western	Oct.	2,388	5,405,362	780,943	6,523,561	724,752	1,118,517	97,115	1,930,104	4,075,912	62.5	2,447,649	1,485,508	1,271,589	1,167,605
	10 mos.	2,392	47,366,322	8,205,690	58,163,418	7,280,713	11,509,277	1,005,868	17,432,275	39,204,331	67.4	18,959,087	12,745,430	11,799,167	14,682,625
Denver & Salt Lake	Oct.	232	277,450	6,571	297,638	48,159	55,256	3,375	101,962	213,078	71.6	84,560	54,536	103,078	—29,340
	10 mos.	232	2,637,130	93,264	2,835,775	602,520	566,126	29,387	945,659	2,252,763	79.5	583,012	280,635	762,529	638,541
Detroit & Mackinac	Oct.	230	83,913	10,151	101,847	22,504	15,924	843	34,756	78,295	76.9	23,552	18,980	14,031	15,931
	10 mos.	230	646,711	115,539	840,351	186,987	176,135	8,207	317,719	728,412	84.8	111,939	68,864	44,065	35,315
Detroit & Toledo Shore Line	Oct.	50	329,577	.....	330,931	36,761	26,055	9,999	91,652	173,045	52.3	157,886	105,476	54,968	29,563
	10 mos.	50	3,583,930	.....	3,597,600	354,464	256,749	97,785	1,013,342	1,809,025	50.3	1,788,575	1,104,966	580,177	630,552
Detroit, Toledo & Ironton	Oct.	464	713,270	1,200	738,593	89,533	146,443	14,690	198,323	474,922	64.3	263,671	179,749	189,782	195,214
	10 mos.	464	7,141,838	14,541	7,527,875	910,316	1,337,757	151,837	1,964,382	4,617,295	61.3	2,910,580	1,694,396	1,706,691	2,090,326
Duluth, Missabe & Iron Range	Oct.	547	4,530,024	4,119	5,245,622	409,509	564,872	4,125	978,284	2,025,355	38.6	3,220,267	1,799,845	1,802,157	1,447,139
	10 mos.	546	32,868,611	57,758	38,143,541	3,958,850	5,440,463	42,966	7,283,999	17,271,119	45.3	20,872,422	11,174,267	11,313,296	8,245,570
Duluth, Winnipeg & Pacific	Oct.	175	169,000	1,200	177,300	53,652	28,951	1,884	82,810	171,340	96.6	5,960	—9,988	—29,701	84,572
	10 mos.	175	2,565,000	38,800	2,654,200	518,346	317,767	21,269	1,041,819	1,939,699	73.1	714,501	514,429	216,931	270,990
Elgin, Joliet & Eastern	Oct.	392	2,553,639	37	2,965,008	268,683	805,988	17,084	1,074,595	2,297,747	77.5	667,261	361,643	300,067	216,377
	10 mos.	392	24,863,160	184	28,818,115	2,760,478	7,679,600	170,896	10,207,831	21,654,113	75.1	7,164,002	3,397,865	2,733,052	1,680,967
Erie	Oct.	2,244	11,428,636	1,259,970	13,573,029	1,578,998	2,251,102	231,891	5,051,241	9,577,449	70.6	3,995,580	2,046,516	1,470,104	580,007
	10 mos.	2,244	113,383,440	11,409,201	133,108,575	13,560,573	22,343,366	2,289,647	48,342,543	91,067,682	68.4	42,040,893	22,839,900	16,708,637	15,912,696
Florida East Coast	Oct.	682	998,526	827,672	2,002,166	339,420	306,973	52,034	728,535	1,545,001	77.2	457,165	338,312	296,798	757,896
	10 mos.	682	13,610,913	11,121,979	26,663,210	3,357,217	2,938,696	524,851	7,550,393	15,633,846	58.6	11,029,364	6,103,939	5,182,833	8,472,088
Georgia Railroad	Oct.	329	677,266	140,708	865,505	119,899	111,463	22,882	319,824	596,249	68.9	269,256	235,977	229,622	222,889
	10 mos.	329	6,614,849	1,577,386	8,631,927	1,039,661	1,163,456	219,262	3,110,512	5,750,498	66.6	2,881,429	2,546,451	2,510,918	3,339,285
Georgia & Florida	Oct.	408	165,259	6,276	176,672	54,827	25,180	10,648	65,766	163,818	92.7	12,854	2,289	—5,493	9,762
	10 mos.	408	1,870,442	69,521	1,993,427	534,602	251,570	106,842	701,265	1,670,875	83.8	322,552	214,077	107,954	204,864
Grand Trunk Western	Oct.	1,026	2,492,000	474,000	3,158,000	439,372	502,251	34,738	1,181,396	2,266,314	71.8	891,686	623,140	631,061	559,624
	10 mos.	1,026	23,884,000	3,814,000	29,614,000	5,038,906	4,866,421	378,734	11,505,653	22,919,011	77.4	6,694,989	4,622,609	4,332,645	5,435,345
Canadian National Lines in New England	Oct.	172	108,600	9,900	138,000	62,001	26,438	2,790	102,770	210,018	152.2	—72,018	—93,463	—125,482	—108,654
	10 mos.	172	1,185,200	127,200	1,547,000	509,999	320,481	23,333	906,981	1,948,185	125.9	—401,185	—615,635	—948,435	—1,060,455
Great Northern	Oct.	8,371	16,936,730	1,826,656	20,246,519	2,541,049	3,137,771	240,792	5,177,557	11,564,730	57.1	8,681,789	4,170,453	3,803,494	3,144,051
	10 mos.	8,372	145,659,500	17,028,192	175,260,208	28,065,892	29,353,337	1,691,759	46,731,960	110,611,893	63.1	64,648,315	28,589,521	26,843,176	25,423,290
Green Bay & Western	Oct.	234	246,922	638	253,985	74,771	24,165	7,506	74,355	188,135	74.0	65,850	27,346	20,392	25,169
	10 mos.	234	2,321,583	6,617	2,393,462	725,193	241,482	82,111	691,471	1,814,520	75.8	578,942	211,795	147,559	528,958
Gulf & Ship Island	Oct.	259	137,638	45,877	210,573	52,014	28,761	2,681	95,427	188,353	89.4	22,220	3,045	—12,634	—2,146
	10 mos.	259	1,687,271	480,442	2,422,455	473,492	243,300	25,855	910,207	1,749,094	72.2	673,361	483,912	306,445	—167,093

REVENUES AND EXPENSES OF RAILWAYS

Gulf & Ship Island	Oct.	259	137,638	45,877	210,573	52,014	28,761	2,681	95,427	188,353	89.4	22,220	3,045	—12,634	—2,146
	10 mos.	259	1,687,271	480,442	2,422,455	473,492	243,300	25,855	910,207	1,249,094	72.2	673,361	453,912	306,445	—167,093

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1944	Net railway operating income 1943
Gulf, Mobile & Ohio	Oct.	1,952	$2,929,368	$196,653	$3,228,891	$645,451	$524,663	$83,264	$932,007	$2,312,134	71.6	$916,757	$524,546	$398,435	$420,497
	10 mos.	1,965	28,067,866	2,341,186	31,418,715	5,463,662	5,297,005	810,695	8,623,721	21,394,899	68.1	10,023,816	5,437,663	3,904,240	4,155,812
Illinois Central	Oct.	4,823	14,632,257	2,808,419	18,678,393	3,038,724	3,482,621	216,727	5,280,161	12,654,163	67.7	6,024,230	1,806,822	1,528,482	2,633,444
	10 mos.	4,823	142,555,723	31,797,593	186,038,403	27,354,567	32,877,594	1,948,256	52,102,404	120,581,255	64.8	65,457,148	23,523,130	20,671,796	27,010,253
Yazoo & Mississippi Valley	Oct.	1,524	2,798,945	455,768	3,427,205	488,927	364,219	35,242	964,059	1,945,986	56.8	1,481,219	631,824	514,363	127,190
	10 mos.	1,524	24,604,405	4,289,614	30,457,064	4,772,032	3,379,983	311,789	9,329,393	18,718,793	61.5	11,738,271	5,410,462	4,279,387	4,957,915
Illinois Central System	Oct.	6,347	17,431,202	3,264,187	22,105,598	3,527,651	3,846,840	251,969	6,244,220	14,600,149	66.0	7,505,449	2,437,530	2,042,757	2,765,547
	10 mos.	6,347	167,160,128	36,087,207	216,495,467	32,126,599	36,257,577	2,260,045	61,431,797	139,300,048	64.3	77,195,419	28,885,670	24,998,312	31,994,297
Illinois Terminal	Oct.	476	735,744	186,683	1,009,282	111,804	100,600	20,953	296,728	$57,369	55.22	451,913	190,305	152,527	143,038
	10 mos.	476	7,076,691	1,819,656	9,716,778	1,044,101	933,749	198,887	2,866,623	5,307,457	54.62	4,409,321	1,517,796	1,197,734	1,296,189
Kansas City Southern	Oct.	878	3,200,702	494,149	3,924,686	540,999	598,220	63,707	949,113	2,293,073	58.4	1,631,613	1,088,613	737,329	338,955
	10 mos.	878	30,738,219	4,323,862	37,105,584	5,018,053	5,050,932	614,300	9,810,876	21,790,504	58.7	15,315,080	7,765,080	5,092,774	4,530,679
Kansas, Oklahoma & Gulf	Oct.	328	406,427	1,751	411,927	52,304	15,073	9,682	80,789	168,952	41.0	242,975	135,230	107,768	109,303
	10 mos.	328	3,469,605	16,973	3,517,730	439,458	209,723	95,547	766,429	1,621,132	46.1	1,896,598	1,063,104	827,423	698,466
Lake Superior & Ishpeming	Oct.	156	198,001	166	257,090	41,144	30,982	640	58,589	139,805	54.4	117,285	20,262	26,903	200,018
	10 mos.	156	2,149,740	1,467	2,750,285	340,100	342,744	6,343	596,223	1,365,390	49.6	1,384,895	673,371	749,645	809,973
Lehigh & Hudson River	Oct.	96	218,538	1	219,131	45,836	42,515	5,500	66,678	167,822	76.6	51,309	33,349	17,186	20,859
	10 mos.	96	2,664,552	1,761	2,673,662	491,549	367,357	52,186	782,259	1,764,257	66.0	909,405	419,123	222,330	250,181
Lehigh & New England	Oct.	190	548,396	.....	551,093	54,888	117,507	7,349	158,802	358,243	65.0	192,850	105,623	111,678	110,768
	10 mos.	190	5,329,742	.....	5,359,826	479,782	1,181,170	76,828	1,552,922	3,491,627	65.1	1,868,199	1,031,499	1,124,390	1,164,443
Lehigh Valley	Oct.	1,260	6,488,976	691,775	7,647,887	1,106,361	1,242,297	133,540	2,857,551	5,539,211	72.4	2,108,676	1,914,641	1,563,512	1,150,281
	10 mos.	1,260	71,158,178	7,154,473	82,701,831	12,066,690	13,365,283	1,214,202	30,627,213	59,421,032	71.8	23,280,799	15,326,092	10,695,687	11,350,801
Louisiana & Arkansas	Oct.	834	2,081,104	183,265	2,324,707	344,489	223,415	34,280	416,975	1,077,887	46.4	1,246,820	400,387	317,664	152,838
	10 mos.	834	15,342,017	1,672,105	17,619,661	3,533,475	1,929,284	339,698	3,739,047	10,156,801	57.6	7,462,860	2,819,101	2,045,360	1,815,742
Louisville & Nashville	Oct.	4,744	13,203,449	3,709,815	17,934,999	2,023,774	3,008,050	224,584	5,581,270	11,409,294	63.6	6,525,705	1,639,888	1,924,622	2,250,840
	10 mos.	4,744	129,441,663	38,652,778	178,278,652	19,353,433	29,840,651	2,099,908	52,501,733	109,633,724	61.5	686,644,928	17,583,620	20,533,652	21,928,092
Maine Central	Oct.	988	1,378,185	332,896	1,821,503	562,086	322,987	14,452	593,646	1,543,105	84.7	278,398	224,056	159,250	100,654
	10 mos.	988	12,349,669	3,329,565	16,838,679	3,362,202	2,868,637	130,398	5,780,465	12,643,659	75.1	4,195,020	1,900,412	1,536,056	2,165,746
Midland Valley	Oct.	334	136,997	411	140,592	25,315	15,824	2,420	46,823	94,957	67.5	45,635	30,605	26,387	26,076
	10 mos.	334	1,376,496	1,668	1,402,364	291,015	127,976	24,015	468,069	957,310	68.3	445,054	308,582	204,227	305,766
Minneapolis & St. Louis	Oct.	1,408	1,293,399	33,000	1,382,866	158,809	187,805	63,705	417,446	883,473	63.9	499,393	145,669	112,154	337,569
	10 mos.	1,408	11,894,533	392,491	12,774,639	2,265,127	1,740,553	646,183	3,954,571	9,164,958	71.7	3,609,681	1,572,906	1,400,848	3,136,556
Minneapolis, St. Paul & Sault Ste. Marie	Oct.	4,277	4,096,202	251,009	4,684,461	605,248	710,208	74,449	1,593,488	3,113,831	66.5	1,570,630	678,971	652,368	1,339,585
	10 mos.	4,277	39,003,824	2,570,150	44,518,651	6,811,775	7,135,901	735,566	15,796,812	31,780,895	71.4	12,737,756	8,463,344	8,027,518	8,173,946
Duluth, South Shore & Atlantic	Oct.	551	308,979	38,661	376,507	81,927	57,254	10,477	131,997	289,481	76.9	87,026	66,191	56,998	137,705
	10 mos.	551	3,057,760	311,204	3,613,878	724,392	572,954	90,157	1,330,508	2,798,279	77.4	815,599	628,804	575,821	965,041
Spokane International	Oct.	152	150,223	5,930	163,057	61,595	14,616	3,216	44,597	131,387	80.6	31,670	27,023	16,954	16,416
	10 mos.	152	1,558,533	84,841	1,725,226	474,922	144,414	34,368	473,546	1,195,853	69.3	529,373	310,346	196,879	249,720
Mississippi Central	Oct.	158	164,569	7,256	176,099	39,855	16,960	8,987	51,545	124,295	70.6	51,804	34,934	21,365	32,100
	10 mos.	158	1,729,984	60,859	1,821,207	317,574	178,406	89,440	480,987	1,140,255	62.6	680,952	436,685	306,161	263,007
Missouri & Arkansas	Oct.	365	201,550	3,539	213,200	72,115	27,121	8,639	79,837	195,163	91.5	18,037	10,585	—10,854	1,467
	10 mos.	365	1,976,286	37,073	2,100,021	500,459	240,162	75,793	680,786	1,566,768	74.6	533,253	347,836	174,324	24,490
Missouri-Illinois	Oct.	172	353,114	2,047	356,650	40,163	46,515	3,583	95,539	192,996	54.1	163,654	86,035	73,139	48,424
	10 mos.	172	2,857,972	12,615	2,889,054	424,988	417,736	37,487	760,110	1,702,547	58.9	1,186,507	538,668	470,832	367,398
Missouri-Kansas-Texas Lines	Oct.	3,253	5,804,560	1,165,824	7,511,040	1,792,654	860,051	136,046	2,000,906	5,021,964	66.9	2,489,076	925,851	509,396	1,512,640
	10 mos.	3,263	53,060,617	11,573,411	69,617,476	15,452,335	14,177,533	1,330,335	19,895,961	47,488,320	68.2	22,129,156	9,572,533	5,344,180	7,596,403
Missouri Pacific	Oct.	7,097	15,190,534	3,825,186	20,519,577	2,410,692	2,829,490	312,564	5,585,541	11,685,592	56.9	8,833,985	4,026,443	3,147,788	3,063,320
	10 mos.	7,097	145,676,253	36,379,564	195,594,618	22,642,855	6,835,606	3,061,573	53,949,345	112,037,332	57.3	83,557,286	37,202,645	28,753,907	33,746,290
Gulf Coast Lines	Oct.	1,734	3,162,172	350,503	3,665,152	612,669	337,688	57,233	943,633	2,042,216	55.7	1,622,936	856,380	632,827	633,260
	10 mos.	1,734	34,780,677	3,540,665	39,753,052	6,160,477	3,676,804	582,129	9,375,633	20,693,762	52.06	19,059,290	8,694,279	5,808,930	5,211,975
International Great Northern	Oct.	1,110	1,960,852	440,989	2,655,782	523,576	334,596	38,938	832,773	1,837,439	69.2	818,343	451,134	289,848	279,970
	10 mos.	1,110	17,909,940	5,246,280	25,598,235	4,879,966	3,417,500	364,028	8,195,522	17,853,016	69.7	7,745,219	4,540,294	2,875,396	3,490,661
Monongahela	Oct.	170	557,569	2,011	563,039	96,506	49,635	637	136,687	287,047	51.0	275,992	184,131	92,990	76,971
	10 mos.	170	5,540,036	21,842	5,612,545	772,032	480,072	7,035	1,431,441	2,729,152	48.6	2,883,393	1,959,033	1,083,987	1,239,233

Table continued on second left-hand page

BETTER BRAKE PERFORMANCE COMES OUT OF A TEST TUBE

There's a lot more to making an air brake—the way Westinghouse makes it—than casting, forging, and machining.

Superlative performance must start with superlative materials—which promotes the test-tube into an important production tool.

The Westinghouse chemical laboratory has a double job. First, to check and double check the flow of materials, and make sure that physical and metallurgical properties are maintained at peak. Second, to carry on a continuing search for new materials that may have even better service qualities.

Every Westinghouse Air Brake made reflects a continuous striving for perfection.

75 Years of Pioneering

WESTINGHOUSE AIR BRAKE COMPANY, WILMERDING, PA.

1869 1944

TO PERMIT TODAY'S TRAINS TO MOVE AT SHORTER INTERVALS WITH HEAVIER LOADS AT HIGHER SPEEDS—SAFELY.

The end of the war will probably mark the beginning of a great equipment construction and repair program to implement rail transportation in its battle for post-war business. It is not too soon to investigate the "modernizing" possibilities of Westinghouse brake equipment on present rolling stock. In many instances, this is the biggest single factor in converting the train of today into the train of tomorrow.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1944	1943
Montour	Oct.	51	$240,674	.....	$241,107	$20,541	$64,221	$1,111	$67,792	$161,773	67.1	$79,334	$20,182	$62,727	$48,622
	10 mos.	51	2,517,548	.....	2,529,868	183,587	650,585	9,954	718,077	1,640,559	64.8	889,309	270,922	659,130	657,880
Nashville, Chattanooga & St. Louis	Oct.	1,072	2,856,764	$558,315	3,669,891	720,035	722,448	86,260	1,194,081	2,829,881	77.1	840,010	314,277	237,313	421,024
	10 mos.	1,072	26,487,709	6,503,187	35,563,738	6,241,213	7,186,309	816,764	11,092,036	26,405,806	74.2	9,157,932	3,411,133	3,057,854	4,065,096
New York Central	Oct.	10,746	40,054,799	14,223,125	60,919,835	9,284,233	10,995,136	741,258	22,912,981	46,329,888	76.1	14,589,947	6,364,029	4,955,816	6,232,345
	10 mos.	10,746	395,183,170	155,924,398	606,329,276	85,475,611	107,002,589	7,072,406	213,975,604	436,060,359	71.9	170,268,917	72,269,806	56,538,752	75,173,347
Pittsburgh & Lake Erie	Oct.	229	2,669,398	103,201	2,864,539	378,500	924,114	42,942	950,790	2,406,297	84.0	458,242	—105,887	392,869	406,189
	10 mos.	229	27,379,253	1,113,273	29,397,283	3,380,243	9,348,842	433,379	9,421,431	23,657,668	80.5	5,739,615	—722,392	4,640,652	5,241,659
New York, Chicago & St. Louis	Oct.	1,687	7,769,103	363,158	8,304,880	929,413	1,320,803	151,095	2,540,412	5,158,757	62.1	3,146,123	1,324,486	1,023,592	1,132,769
	10 mos.	1,688	78,577,256	3,976,280	84,124,145	8,890,671	12,315,301	1,398,496	25,690,483	50,382,269	59.9	33,741,876	14,084,905	9,398,995	11,451,069
New York, New Haven & Hartford	Oct.	1,838	7,467,519	6,414,413	15,079,869	1,991,093	2,363,178	157,256	5,250,665	10,486,537	69.5	4,593,332	2,318,005	1,246,464	2,473,926
	10 mos.	1,838	78,545,734	62,801,818	153,012,631	19,997,187	22,742,702	1,487,420	52,990,774	104,473,676	68.3	48,538,955	29,305,911	18,387,523	28,957,069
New York Connecting	Oct.	21	222,391	.....	245,817	80,542	11,388	.....	53,855	147,636	60.1	98,181	—120,692	68,484	108,103
	10 mos.	21	2,284,560	.....	2,514,823	690,242	123,151	.....	532,139	1,364,743	54.3	1,150,080	—257,725	1,359,572	1,145,211
New York, Ontario & Western	Oct.	546	644,895	4,544	706,677	89,469	150,365	24,585	428,118	718,065	101.6	—11,388	—54,829	—111,241	14,120
	10 mos.	546	6,890,196	444,273	7,925,148	923,089	1,573,826	232,841	4,471,990	7,468,754	94.2	456,394	7,687	—612,297	294,951
New York, Susquehanna & Western	Oct.	120	420,564	37,538	478,495	40,047	48,203	4,293	162,951	271,123	56.7	207,372	129,204	90,723	94,266
	10 mos.	120	4,355,879	356,718	4,858,189	381,744	436,298	47,109	1,715,367	2,741,695	56.4	2,116,494	1,381,708	796,207	920,323
Norfolk & Western	Oct.	2,154	11,882,875	1,427,902	13,700,142	1,490,853	2,462,773	170,951	3,018,793	7,497,515	54.7	6,202,627	1,596,468	2,196,466	2,147,461
	10 mos.	2,154	115,867,626	14,520,999	134,388,710	14,502,554	25,903,310	1,639,623	29,614,743	75,141,097	55.9	59,247,613	15,143,171	21,579,144	19,316,232
Norfolk Southern	Oct.	727	628,658	17,855	670,850	160,545	85,021	31,061	227,394	531,850	74.8	139,000	87,875	60,849	169,796
	10 mos.	728	6,450,887	283,443	6,954,105	1,648,530	822,845	287,895	2,370,311	5,401,944	77.7	1,552,161	929,060	635,180	952,314
Northern Pacific	Oct.	6,867	11,604,706	1,867,379	14,625,282	2,181,664	2,613,465	187,346	4,321,072	9,891,188	67.6	4,734,094	2,425,466	2,608,349	4,521,838
	10 mos.	6,867	100,891,954	18,618,474	130,223,543	18,167,422	24,551,357	1,825,651	37,974,677	88,170,277	67.7	42,053,266	16,183,444	19,299,211	28,019,454
Northwestern Pacific	Oct.	331	546,220	21,527	598,144	153,586	53,940	3,677	158,823	376,812	63.0	221,332	195,499	165,574	—33,365
	10 mos.	331	4,726,252	205,403	5,160,188	1,669,926	613,896	29,446	1,679,875	4,061,116	78.7	1,099,072	833,963	589,765	838,108
Oklahoma City-Ada-Atoka	Oct.	132	137,998	1,056	140,910	16,019	3,858	1,141	29,119	54,546	38.7	86,364	49,871	33,917	39,883
	10 mos.	132	1,331,595	5,737	1,350,088	194,374	46,345	11,989	292,850	589,775	43.7	760,313	439,680	297,908	284,500
Pennsylvania	Oct.	10,090	57,115,125	21,738,601	86,048,421	9,212,765	15,567,035	964,561	31,672,767	60,648,317	70.5	25,400,104	10,069,089	9,415,050	8,216,315
	10 mos.	10,097	569,185,450	217,077,632	848,994,579	97,918,536	158,700,210	10,229,173	320,663,766	615,836,277	72.5	233,158,302	105,955,531	95,845,654	114,024,963
Long Island	Oct.	376	1,127,383	2,275,392	3,640,747	554,867	534,179	10,736	1,642,249	2,795,200	76.8	845,547	427,955	170,591	134,653
	10 mos.	376	12,071,483	24,334,294	38,205,507	5,719,088	5,514,089	211,762	16,339,277	28,334,847	74.2	9,870,660	5,117,555	2,669,325	3,888,582
Pennsylvania-Reading Seashore Lines	Oct.	392	524,026	275,257	831,490	175,251	105,926	6,673	454,257	766,145	92.1	65,345	—37,615	—138,979	—174,524
	10 mos.	392	5,192,342	5,219,861	10,772,788	1,614,783	1,017,594	86,854	4,819,862	7,806,562	72.5	2,966,226	1,801,490	566,991	1,260,143
Pere Marquette	Oct.	1,949	4,306,029	260,732	4,774,634	925,210	898,330	73,955	1,732,231	3,788,830	79.4	985,804	520,238	431,816	501,214
	10 mos.	1,964	42,126,407	3,402,161	47,781,374	8,349,658	8,474,274	727,909	16,652,875	35,995,057	75.3	11,786,317	5,081,359	4,268,797	5,433,577
Pittsburg & Shawmut	Oct.	97	115,674	.....	116,429	81,266	24,725	1,714	34,420	147,966	127.1	—31,537	—10,755	—13,340	25,003
	10 mos.	97	1,279,943	.....	1,286,585	369,254	251,152	18,717	361,534	1,056,623	82.1	229,962	194,931	176,614	226,622
Pittsburgh & West Virginia	Oct.	136	600,997	44	622,017	110,511	109,831	20,883	156,519	428,572	68.9	193,445	202,052	220,458	147,356
	10 mos.	136	5,921,355	187	6,104,761	1,074,507	1,140,075	210,968	1,526,515	4,230,169	69.2	1,874,592	1,304,761	1,528,560	1,542,347
Pittsburg, Shawmut & Northern	Oct.	190	106,443	.....	107,354	25,935	21,982	1,111	45,554	100,102	93.2	7,252	561	—3,309	16,735
	10 mos.	190	1,058,156	.....	1,070,540	262,086	221,693	10,934	463,035	1,014,941	94.8	55,599	—12,448	—65,930	130,555
Reading	Oct.	1,410	8,415,244	877,990	9,710,288	1,721,251	1,986,451	84,040	3,373,376	7,377,125	76.0	2,333,163	1,184,143	1,146,858	1,641,191
	10 mos.	1,412	83,937,379	8,625,432	96,873,390	12,585,799	19,019,242	831,974	33,066,118	67,550,004	69.7	29,323,386	12,931,462	11,857,298	14,858,838
Richmond, Fredericksburg & Potomac	Oct.	118	1,538,367	1,315,751	3,129,076	250,493	380,753	15,990	798,551	1,555,403	49.7	1,573,673	379,713	256,942	294,613
	10 mos.	118	15,245,542	13,888,518	31,757,390	2,087,661	3,686,826	151,075	7,802,260	14,909,080	46.9	16,848,310	4,313,814	2,745,580	3,281,559
Rutland	Oct.	407	342,000	67,953	489,065	67,716	95,934	12,505	233,384	426,919	87.3	62,146	30,225	26,889	67,995
	10 mos.	407	2,974,630	633,303	4,278,592	626,585	879,483	121,547	2,163,448	3,947,356	92.3	331,236	71,616	71,039	304,937
St. Louis-San Francisco	Oct.	4,646	7,568,410	1,997,895	10,307,298	1,207,237	1,842,246	171,244	3,195,636	6,765,805	65.6	3,541,493	1,787,286	1,790,879	1,857,475
	10 mos.	4,650	69,250,819	20,430,276	96,469,189	12,685,759	17,729,400	1,678,023	30,587,051	66,149,682	68.6	30,319,507	14,323,057	14,156,808	19,188,102
St. Louis, San Francisco & Texas	Oct.	159	219,096	27,255	255,382	47,600	32,384	11,625	105,808	205,035	80.3	50,347	37,720	15,091	32,847
	10 mos.	159	2,931,238	278,844	3,288,396	389,327	308,991	110,884	1,021,167	1,903,227	57.9	1,385,169	592,318	341,924	851,836

W. Louis, San Francisco & Texas	10 mos.	159	2,931,238	278,844	3,288,396	389,327	308,991	110,884	1,021,167	1,903,227	57.9	1,385,169	592,318	341,924	851,836

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1944	1943
St. Louis Southwestern Lines	Oct.	1,607	$6,028,013	$349,340	$6,549,421	$550,988	$610,019	$108,923	$1,425,858	$2,835,791	43.3	$3,713,630	$1,346,774	$1,052,433	$905,496
	10 mos.	1,607	54,955,963	3,519,748	59,886,063	6,310,648	5,686,515	1,015,273	13,442,937	27,781,375	46.4	32,104,688	11,756,451	8,860,057	9,431,729
Seaboard Air Line	Oct.	4,174	7,075,601	3,456,836	11,639,905	1,508,458	1,755,367	242,907	3,402,218	7,411,683	63.7	4,228,222	2,203,222	1,867,205	2,440,641
	10 mos.	4,175	74,291,124	35,665,965	117,976,596	14,539,164	16,578,802	2,349,822	34,723,764	73,178,859	62.0	44,797,737	23,142,737	18,849,003	28,490,689
Southern Railway	Oct.	6,505	15,710,797	5,094,396	22,120,064	2,526,247	3,673,344	231,546	6,438,852	13,546,402	61.2	8,573,662	3,003,508	2,643,933	2,828,293
	10 mos.	6,510	156,231,638	49,837,450	218,376,284	26,680,736	33,866,702	2,148,427	61,703,731	130,867,014	59.9	87,509,270	30,740,642	27,362,298	30,161,400
Alabama Great Southern	Oct.	315	1,331,334	419,454	1,847,578	192,538	355,613	24,181	583,854	1,212,091	65.6	635,487	203,404	136,036	333,747
	10 mos.	315	13,473,954	4,193,156	18,592,993	1,765,658	3,106,410	228,272	5,538,267	11,226,292	60.4	7,366,701	2,210,349	1,609,514	2,467,254
Cincinnati, New Orleans & Texas Pacific	Oct.	337	2,314,796	828,963	3,293,775	331,018	734,160	41,837	834,861	2,033,929	61.8	1,259,846	388,355	411,808	539,307
	10 mos.	337	23,874,658	6,679,958	32,043,637	3,079,804	6,694,364	366,548	8,205,644	19,244,871	60.1	12,798,766	3,873,272	4,135,725	5,173,285
Georgia Southern & Florida	Oct.	397	279,514	187,629	519,839	79,696	67,625	2,668	168,641	334,169	64.3	185,670	96,454	65,451	70,621
	10 mos.	397	2,983,243	1,998,764	5,506,059	805,004	724,242	26,055	1,775,252	3,494,386	63.5	2,011,673	947,752	586,241	964,383
New Orleans & Northeastern	Oct.	204	849,896	211,864	1,112,945	149,039	151,940	12,245	310,486	660,245	59.3	452,700	178,328	102,010	169,013
	10 mos.	204	8,181,233	2,162,780	10,831,257	1,320,093	1,246,622	115,471	3,114,498	6,171,649	57.0	4,659,608	1,781,793	985,975	1,462,004
Southern Pacific	Oct.	8,262	28,724,911	8,488,989	40,749,167	5,387,035	7,544,806	669,576	14,282,647	30,039,815	73.7	10,709,352	4,854,501	3,103,938	3,613,227
	10 mos.	8,262	291,487,626	88,997,601	413,399,831	56,065,833	74,131,932	6,090,328	127,305,065	284,918,561	68.9	128,481,270	48,887,715	33,889,029	49,943,015
Texas & New Orleans	Oct.	4,335	8,260,120	2,237,059	11,261,856	1,486,829	1,435,961	160,925	3,081,058	6,541,030	58.1	4,720,826	1,661,949	1,133,621	1,121,969
	10 mos.	4,339	81,550,277	23,906,195	111,660,436	14,634,218	13,695,016	1,545,934	28,772,514	62,388,412	55.9	49,272,024	15,795,419	10,640,436	21,400,223
Spokane, Portland & Seattle	Oct.	944	1,887,298	293,921	2,316,578	781,696	241,333	12,232	658,327	1,761,079	76.0	555,499	500,212	348,602	425,600
	10 mos.	944	18,312,474	2,107,147	21,571,568	5,639,612	1,999,476	133,844	6,297,859	14,715,628	68.2	6,855,940	5,179,044	3,348,249	4,771,231
Tennessee Central	Oct.	286	279,390	92,983	393,362	82,883	67,138	7,290	136,976	312,008	79.3	81,354	27,991	9,492	36,366
	10 mos.	286	3,348,146	595,056	4,139,572	850,904	655,594	70,027	1,330,540	3,082,185	74.5	1,057,387	586,320	412,435	698,346
Texas & Pacific	Oct.	1,884	4,672,005	1,718,004	6,962,251	1,043,274	974,484	114,072	1,666,039	4,086,866	58.7	2,875,385	824,513	584,115	872,721
	10 mos.	1,884	43,464,400	17,835,652	66,911,500	9,051,325	9,631,902	1,109,747	15,733,845	38,287,922	57.2	28,623,578	7,596,810	5,599,958	7,777,480
Texas Mexican	Oct.	162	154,172	655	181,068	94,197	18,900	4,318	46,946	173,442	95.8	7,626	—21,861	—32,033	18,672
	10 mos.	162	1,721,794	9,738	1,992,418	402,762	175,270	41,910	484,511	1,199,204	60.2	793,214	521,608	428,812	470,179
Toledo, Peoria & Western	Oct.	239	430,866	16	434,587	42,764	21,957	24,794	93,939	197,215	45.4	237,372	217,958	195,912	216,219
	10 mos.	239	4,325,864	647	4,368,928	390,954	217,604	240,810	880,823	1,861,003	42.6	2,507,925	2,248,939	2,028,564	1,990,618
Union Pacific System	Oct.	9,782	35,668,378	7,354,817	47,002,673	4,681,459	6,903,320	540,008	12,020,836	25,936,245	55.2	21,066,428	5,009,347	3,329,698	4,201,620
	10 mos.	9,782	306,405,580	76,994,810	414,717,578	54,527,256	71,060,119	5,779,339	112,990,725	262,697,433	63.3	152,020,145	41,700,047	31,112,401	35,465,027
Utah	Oct.	111	82,106	.....	82,120	11,939	38,402	519	27,968	83,186	101.3	—1,066	—10,462	18,357	11,387
	10 mos.	111	1,108,675	.....	1,109,466	132,553	385,248	5,602	342,168	909,145	81.9	200,321	103,677	113,508	119,263
Virginian	Oct.	657	2,242,303	8,503	2,339,933	319,622	595,507	24,224	560,711	1,549,890	66.2	790,043	448,043	562,871	604,080
	10 mos.	657	23,668,206	93,242	24,579,632	2,646,283	5,644,873	247,618	5,085,765	14,188,734	57.7	10,390,898	4,954,898	5,977,784	6,241,770
Wabash	Oct.	2,393	6,870,269	881,361	8,238,924	1,063,182	984,656	177,018	2,556,839	5,080,935	61.7	3,157,989	1,231,886	860,213	1,083,922
	10 mos.	2,393	65,468,661	8,940,060	79,015,480	10,250,244	9,759,897	1,649,060	24,376,520	48,595,448	61.5	30,420,032	11,700,352	7,533,299	9,876,399
Ann Arbor	Oct.	294	519,918	8,229	541,202	63,650	85,521	16,332	208,725	386,835	71.5	154,367	61,984	59,806	48,257
	10 mos.	294	4,653,531	111,833	4,935,504	613,483	844,979	161,922	2,005,820	3,748,697	76.0	1,186,807	603,643	574,025	668,559
Western Maryland	Oct.	840	2,898,175	26,269	3,023,187	530,552	618,705	46,930	780,196	2,066,044	68.3	957,143	630,143	651,546	606,529
	10 mos.	840	29,567,124	313,341	30,750,157	4,336,957	5,924,112	440,963	8,193,827	19,799,720	64.4	10,950,437	5,446,437	5,707,493	6,634,685
Western Pacific	Oct.	1,195	4,561,172	711,167	5,446,574	555,867	596,716	91,989	1,522,888	2,936,270	53.9	2,510,304	1,026,407	779,118	1,244,753
	10 mos.	1,195	35,114,253	6,608,431	43,231,987	5,470,772	5,879,543	830,171	12,848,120	26,532,242	61.4	16,699,745	7,444,728	5,966,346	10,058,470
Wheeling & Lake Erie	Oct.	507	2,069,615	1	2,138,063	243,290	377,837	44,087	632,585	1,347,206	63.0	790,857	130,893	283,408	359,416
	10 mos.	507	20,281,718	44	21,042,156	2,421,229	3,907,449	412,943	6,289,224	13,546,493	64.4	7,495,663	1,115,155	2,764,201	3,288,089

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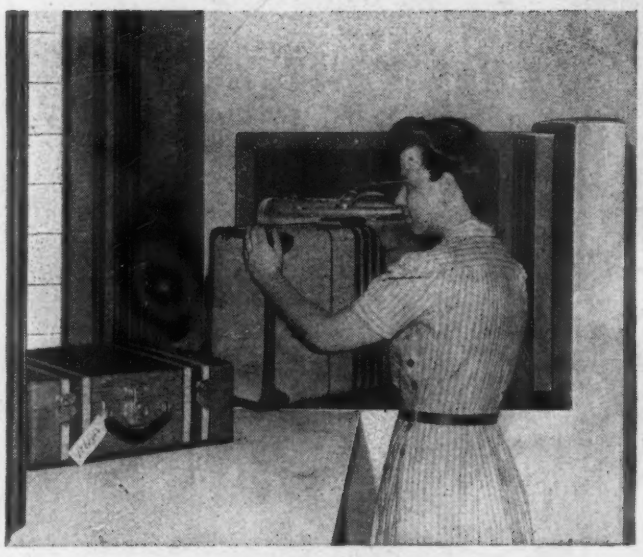

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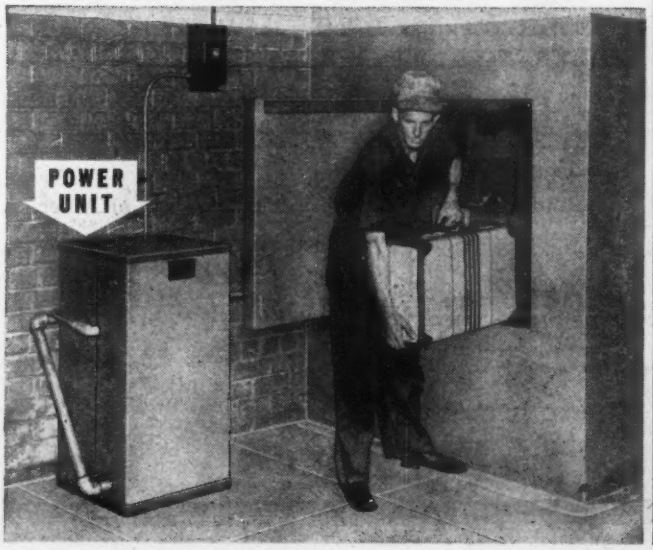

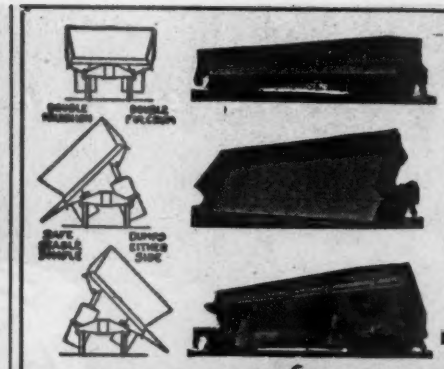

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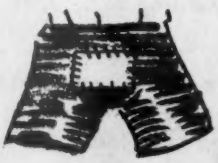

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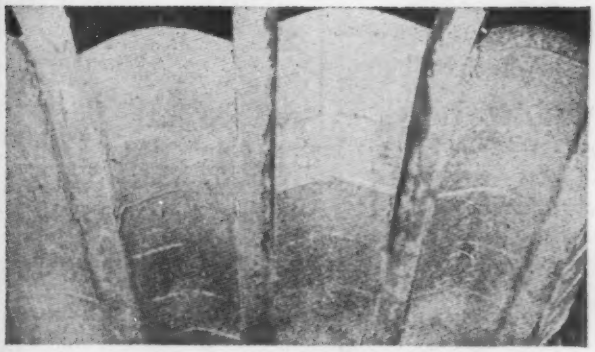

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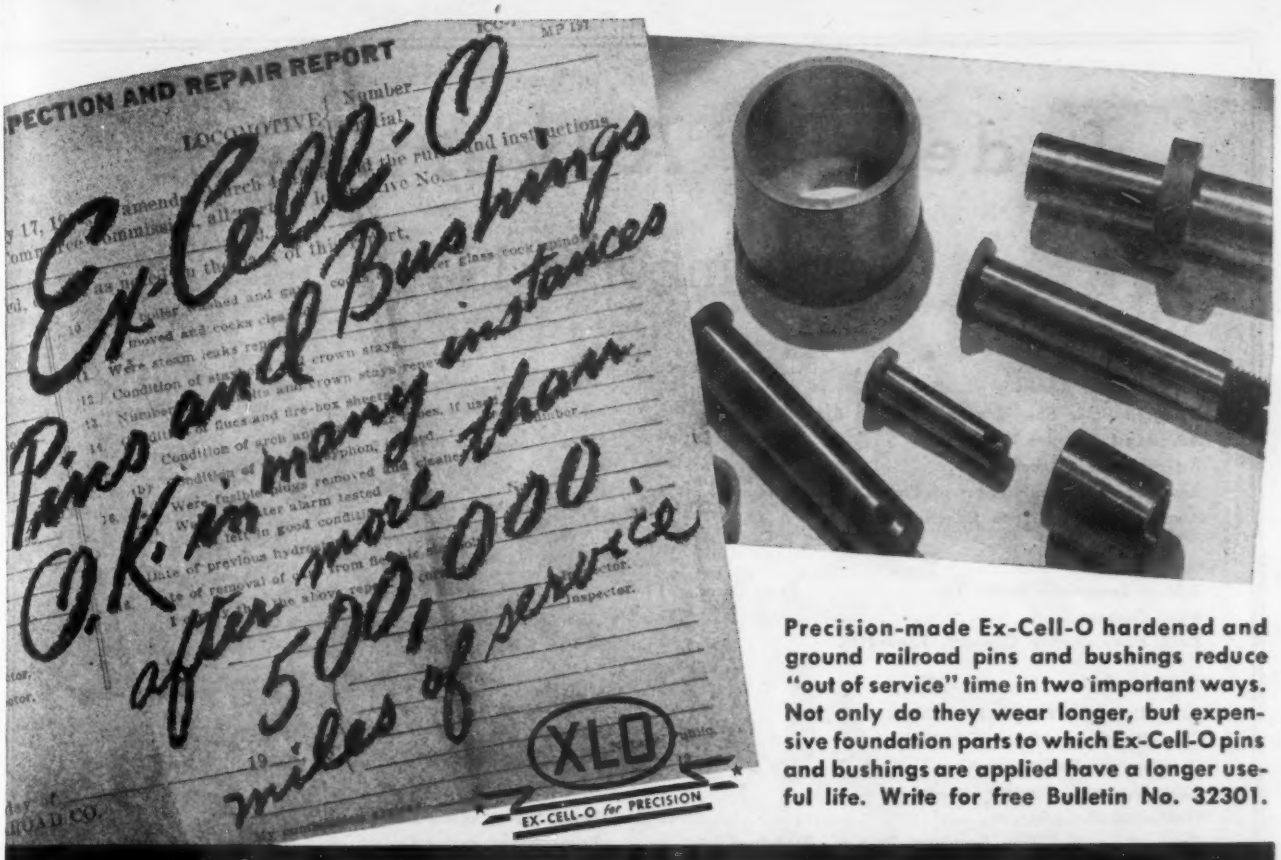

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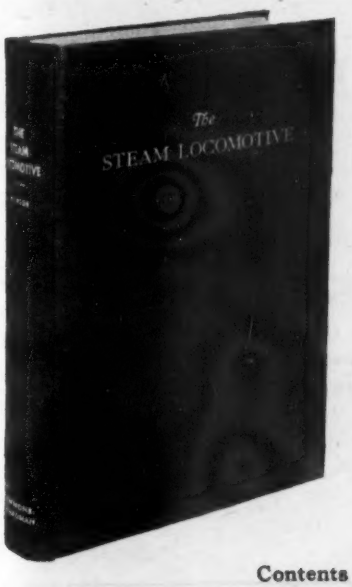

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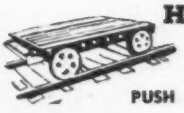

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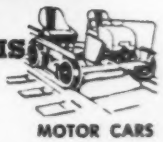

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